



Tłıchǫ Government

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November 24, 2020

Anneli Jokela
Wek'èezhìi Land and Water Board
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Re: Intervention for the Diavik Diamond Mines (2012) Inc.–W2015L2-0001 Processed Kimberlite to Mine Workings Amendment

Dear Anneli Jokela,

The Tłıchǫ Government is providing this cover letter as part of their Intervention for the Diavik's Processed Kimberlite to Mine Workings Water Licence Amendment. The Intervention Report is attached to this letter.

The Intervention Report focuses on the cultural implications for the water in Lac de Gras if PK is deposited in the mine workings. The report details the cultural criteria set forth by the Tłıchǫ elders with respect to the water and what it means to be safe, clean, and healthy for cultural use.

We gratefully acknowledge the contributions of our elders in this process, who have entrusted the Tłıchǫ Government to communicate their words and vision, and to put forward strong recommendations to the WLWB and Diavik to ensure cultural use of Lac de Gras is protected, now and for future generations.

We thank you for considering our comments, and we look forward to continuing our participation in this water licence amendment process.

In Tłıchǫ Unity,

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



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Public Hearing Intervention

Diavik Water Licence Amendment – Processed Kimberlite to Mine Workings

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As people we would use the water to wash ourselves and drink the water [at Lac de Gras]. People just don't go on the land for nothing, people would go on the land and use the water. Today it seems like we don't go anywhere, but in the future maybe 30-50 years there may be some people that want to do their own thing and survive on the land. Those are things that I am thinking about, maybe somebody might be going out on the land, sleeping on the ground, using the water. Not only the human, but also the wildlife.
(Elder Joseph Judas, 12-Nov-2020)

1. Background

Diavik is applying for a water license to store processed kimberlite (PK) in pits and underground mine workings. After the Environmental Assessment (EA) (EA1819-01, 2020) of this proposal, the Review Board concluded that additional mitigation measures are necessary to prevent significant adverse impact on cultural use of Lac de Gras. The measures set out by the Board are intended to prevent or reduce the risks of impact on water, build confidence in the project, and reduce the likelihood of adverse impacts on cultural use of Lac de Gras.

The Tłıchǫ Government has worked with elders to examine how to build and maintain this confidence over time so cultural use of the area can continue. In this intervention report, we describe the monitoring and collaboration we believe is required at each step, both before breaching the dykes between the pit and Lac de Gras and after. The work with the elders was jointly funded by Diavik and the Tłıchǫ Government.



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This report focuses on Tłıchǫ elder guidance with respect to what it means for water to be safe, clean, and healthy for cultural use. This elder guidance is intended to be reviewed and incorporated into water licence conditions. The elders note that they feel the area is already affected by mining, as illustrated by this quote by elder Louis Zoe:

Our ancestors that travelled into that area of Lac De Gras and on the east island where people use to hunt and camp on. That island that's where the caribou would migrate on to the island and continue south. For that reason, they call the island Eka de¹; it's a caribou island. So today as the mine exists, we are not going to reclaim that island. But when we make a recommendation, with the amount of damage that is being done to that island, [it] should do a little bit of good for the island and also the water. We may not drink water in that area, but I am not the only one thinking about this in this manner because we love our land. This is our land; that's the reason why we are talking about it. We are not only talking about it on behalf of ourselves, but the children coming after us for the future generations they may be using the land, and going on the environment so they can live off the land. All the damage that is being created, we don't want to further damage the land. (November 11, 2020)

There are three principles that the elders and the Tłıchǫ Government consider to be vital to maintaining confidence in cultural use of Lac de Gras. These are:

Principle 1: Elders and the Tłıchǫ 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.

Principle 2: Elders and the Tłıchǫ Government have identified the requirement for Tłıchǫ involvement and review in monitoring, to protect confidence and cultural use.

Principle 3: Elders and the Tłıchǫ Government have specifically set out scientific and traditional knowledge monitoring approaches for each of stage of the Project.

¹ The "island" (where Diavik has their project) is called Eka de, which means "fat island". "Eka" means "fat" and "de" means island.



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1.1. Relevant EA Measures

During the EA process, the Review Board set legally-binding EA measures that Diavik must follow, including: meeting water quality criteria that will protect people, aquatic life, wildlife, and cultural use of the area (EA Measure 1); more engagement with Indigenous Governments and Organizations to develop criteria for determining if water quality is acceptable for cultural use (EA Measure 2); updating modelling at each stage of the Project (EA Measure 3), and conducting independent review of Diavik's water quality modelling at each stage (EA Measure 4).

The Tłıchq Government expects that all EA measures will be fully implemented in a way consistent with their intent and purpose.

The Tłıchq Government notes that substantial progress has been made towards implementing these measures (although EA Measure 1 is a requirement that will be tested with time). With respect to EA Measure 2, Diavik has worked closely with the Tłıchq Government on the question of cultural criteria. The Tłıchq Government has carefully followed the updated modelling, and participated as witnesses throughout the independent review.

The Tłıchq Government posed specific questions to the independent panel, aimed at testing whether the new modelling and independent review were leading to greater confidence in the results. The independent reviewers stated that they felt the model would assist with understanding whether the silt would settle, that the base case results of the model show that water quality in the upper 40 m of A418 is not expected to exceed the AEMP water quality guidelines, and that Diavik's modelling generally is consistent with best practices and appears to cover all relevant variables (Independent Panel Final Report, Tinis, Azam, and Wells, 2020).

The Panel's final report includes many recommendations for Diavik to consider, and the Tłıchq Government considers their implementation to be vital to maintain confidence. The Tłıchq Government looks forward to the continuing engagement of the Independent Panel, as required under EA Measure 4.

The Tłıchq Government will also carefully review all of the technical recommendations made by other parties, particularly the Environmental Monitoring Advisory Board (EMAB). Notably, the elders and the Tłıchq Government rely strongly on the advice of the EMAB and the consultants retained by them. Thorough consideration of their advice is an important part of maintaining confidence in the water quality in the region. There may be a need for further technical adjustments, such as modelling with worst-case conditions, considering more adverse concentrations in porewater, progressing the monitoring of Lac de Gras, and monitoring suspended sediment conditions during PK placement in the pit (including the interface of the PK and overlying water) (EMAB 2020).



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2. Elder Technical Guidance on Cultural Criteria

The Tłıchǫ Government has been working closely with elders on cultural water quality criteria.

The Tłıchǫ Government ran elder meetings on November 5th, 11th, and 12th of 2020 to discuss water quality criteria and how to protect cultural use. The elders who participated in these meetings were Joseph Judas, Charlie Apples, Charlie Jim Nitsiza, and Louie Zoe.

The elder meetings centred around these four questions:

- a) How will you know if the water around Diavik Mine is good for cultural use?
- b) How will you know if the water around Diavik Mine is NOT good for cultural use?
- c) What are the good conditions you look for compared to other lakes?
- d) What could change your use of Lac de Gras?

The elders discussed these questions at length, considering the criteria for acceptable cultural use of Lac de Gras. The outcome of this discussion was framed in two ways: **how clean** does the water need to be; and **how to know** if the water is clean and healthy.

2.1 How Clean Does the Water in the Pit(s) and Lac de Gras Need to Be?

In the environmental assessment process, the elders and the Tłıchǫ Government suggested that the water quality should not be altered, and that the waters and lands of Lac de Gras – including the pit lakes – must remain healthy for humans, terrestrial wildlife, and aquatic life.

These two points were made again in the November meetings, however new emphasis and priorities were identified about monitoring and Tłıchǫ participation. Three overarching principles were identified by the elders and the Tłıchǫ Government.

Principle 1: Elders and the Tłıchǫ 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.

The elders and Tłıchǫ Government want to see decisions made gradually, as the evidence from science and traditional knowledge emerges. We will rely on both forms of knowledge, and our trust relies on participating in the science, as well as relying on long term traditional knowledge (TK).



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Cultural Water Quality Criteria:

- Scientific criteria: Water in the pit lakes and Lac de Gras must meet AEMP benchmarks² and guidelines for the protection of aquatic life, wildlife, and people.
- TK Criteria: Water must also appear “good” to Tłıchǫ elders and monitors, based on the following TK criteria: clarity, temperature, color, scum or unnatural material, smell, taste.

The elders spoke about how the water in Lac de Gras needs to be safe and clean enough for fish and other aquatic species to be healthy.

In the past, in Behchokǫ, fish is very healthy ... that’s what we grow up on, fish was very healthy back then, but today [we] catch fish and even the texture and health of the fish differentiates from the past because of the [Giant] mine site that exists. Similar to this, the mine site that exists on the Lac de Gras, on the east island, water is going to change, of course water is never the same because once the water mixes within the pit, it’s going to differentiate within the water ... When they have aquatic fish monitoring, checking the water and the fish, we would check the fish and there would be some kind of spots on the fish, maybe it’s because of the water, maybe it’s the fish food, phytoplankton, zooplankton, those things may not be healthy. (Elder Charlie Apples, 12-Nov-2020)

There are many traditional knowledge monitoring approaches set out through the Diavik TK Panel (See TK Panel Session #12, 2019). These have had participation from and by various Tłıchǫ elders, and generally speaking the methods established through the TK Panel are valuable and important to follow.

The scientific and TK criteria set out above are included in Table 1 below, in terms of what is needed for the perspectives of monitoring, modelling, and on-site experience.

Principle 2: Elders and the Tłıchǫ Government have identified the requirement for Tłıchǫ involvement and review in monitoring to protect confidence and cultural use.

To understand whether the water in the pit and Lac de Gras is healthy, the elders repeatedly stated that there must be Tłıchǫ Government involvement in monitoring at every stage. This is consistent with the Report of EA, which noted that “collaborative development, use, and monitoring of these criteria will allow change to be measured in ways that are meaningful and understandable for communities and cultural users” (Review Board, 2020, p.81). EA measure 4 specifically requires Diavik to support indigenous long-term monitoring.

² AEMP benchmarks should be kept up to date with the latest science to ensure they are protective of aquatic life, wildlife, and people.



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Since the issuance of the EA report, the Tłıchǫ Government has worked in collaboration with the elders and Diavik to tie the cultural criteria to decision points (see Table 1), and identify elder and Tłıchǫ Government involvement throughout. This collaborative development, if maintained, will go a long way towards ensuring the criteria continue to be met over time and protection objectives – including “cultural use” – are achieved.

The elders were firm in stating that the Tłıchǫ Government and its people need to be actively engaged in the monitoring design and implementation. This, the elders explained, is central to building confidence among Tłıchǫ people in being able to harvest, drink water, and camp in and around Lac de Gras again.

I am still concerned to see the outcome of it, whether the water will be as clean as it was, not according to their [Diavik] standard, but [pause]. Like I say, the animals were travelling around that area because they're there before the mine came and they'll be there after the mine closes as well ... some animals are living off of plants alone in the area ... if it's consumed by animals how healthy would that be? ...Monitoring should be done by the Aboriginal standard, and I really believe that. (Elder Louie Zoe, 11-Nov-2020)

It's hard to really prove that any water quality might change down the road to sufficient standard ... we should have most of our people that work or do some sampling with them [Diavik] in order to do monitoring and that might give us some good indication what they are doing... (Elder Charlie Apples, 11-Nov-2020)

I still want to see that our leaders are working with them [Diavik] and have the elders working with them and doing the studying and monitoring and all that [together]. (Elder Charlie Jim Nitsiza, 12-Nov-2020)

The elders said they want to see and experience the water ‘with their own eyes’ so that they can see the process and water for themselves.

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] ... If they want to take a tour it would be good to have a tour in the summer months [when its warm] so we can see with our own eyes... (Elder Louie Zoe, 12-Nov-2020)

It's not like we will be there collecting water all the time, but people who are in control and monitoring the water ... that's the only way we will know about this, the effects of the water, if they monitor the water... and we have to have a say in this portion of the water licence because that's where our ancestors used to work on the land, and this is our land. (Elder Joseph Judas, 12-Nov-2020)



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Furthermore, the elders also stressed the importance of water being sampled regularly, using scientific and traditional knowledge monitoring methods.

The best outcome would be if the water would go back to normal ... [that] what would come out of there has the same quality with the existing Lac de Gras water, it will be satisfactory. Like I say, for two years monitoring after everything is all done I don't think it's sufficient time ... need more time to do the monitoring. (Elder Charlie Jim Nitisza, 12-Nov-2020)

The elders expect that monitoring efforts, and the overall health and safety of Lac de Gras, meet the standards set out in aquatic life protection guidelines and AEMP benchmarks.

2.2 How to Know if the Water in Lac de Gras is Healthy?

Principle 3: Elders and the Tłıchǫ Government have set out specific monitoring approaches for each stage of the Project.

To evaluate the health and safety of water quality over the course of the closure process, the elders suggested completing monitoring at four specific stages: **1) Before depositing processed kimberlite into the pit(s) and underground; 2) before filling the pit(s) with water from Lac de Gras; 3) before reconnecting (partially or fully) the pit lake(s); and 4) Immediately after the breach and continuing afterwards.** This will provide the Tłıchǫ Government and the elders with an in-depth understanding of changes in water quality, and build confidence in the closure process for future cultural use.

Table 1 below summarizes the monitoring approach recommended by the elders and the Tłıchǫ Government at each of these time frames, combining scientific and traditional knowledge approaches to ensure water is suitable for cultural use.

Table 1: Monitoring approaches for maintaining confidence in cultural use

Time Frame	Monitoring Approach
Before depositing processed kimberlite into the pit(s) and underground	<i>Monitor:</i> Continue AEMP monitoring.



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	<p><i>Model:</i> Address Independent Review Panel (IRP) recommendations and confirm modelled pit water quality meets AEMP benchmarks³ and model representations of TK criteria.</p> <p><i>Experience:</i> Elder and TG staff site visit before PK in pits to observe conditions, and to understand all key processes for PK placement. Note: Elders may want to see all components of the process for placement. There needs to be an inspection of pits and approach to placement of the PK in the pits – elders need to see it “with their own eyes.”</p>
<p>Before filling the pit(s) with water from Lac de Gras</p>	<p><i>Monitor:</i> Test and treat PK water and communicate about results with elders and Tłıchǫ Government.</p> <p><i>Model:</i> Ensure there is strong modelling & IRP review (as required by EA measures 3 and 4) of how the PK & PK pore water will influence the pit water quality. Confirm modelled pit water quality meets AEMP benchmarks and model representations of TK criteria.</p> <p><i>Experience:</i> Facilitate visual inspection by elders and TG staff.</p>
<p>Before reconnecting (partially or fully) the pit lake(s) containing PK to Lac de Gras</p> <p><i>“My greatest concern, I understand and know what the company is planning on doing, if you were to pour some fresh water into the pit and a quarter of it halfway down is where they are going to dump processed kimberlite, what kind of mixture will the water and processed kimberlite</i></p>	<p><i>Monitoring:</i></p> <ul style="list-style-type: none"> • Take water samples in the pit and compare to AEMP benchmarks and TK criteria. Sample at various depths and locations in the pit. • Monitor every year at several different times of year until the water “stays good” (for example, stable for 2-3 years). Conduct more frequent or continuous monitoring in the pit to show, for example, if the turbidity from the PK water is slowly mixing. • Continue AEMP monitoring, and start annual monitoring at one far field (FFA) site. Check areas in Lac de Gras that are far away from the pit and close to the pit (possibly MF3-2 and MF3-7), as well as in the pit itself and compare data from those three locations. • Conduct toxicity tests with samples from the pit lake. • Conduct verification monitoring. <p><i>Modelling:</i> Update and review modelling (per EA measure 3 & 4) and confirm that modelled water quality in pits and Lac de Gras will meet</p>

³ The TG expects AEMP benchmarks will be kept up to date with the latest science to ensure they are protective of aquatic life, terrestrial wildlife, and people.



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<p><i>going to settle down in the future? This is my personal concern ... I am cautious about what mixture processed kimberlite with water [will make]...” (Elder Joseph Judas, Nov. 12, 2020)</i></p>	<p>and continue to meet AEMP benchmarks and model representations of TK criteria.</p> <p><i>Experience:</i></p> <ul style="list-style-type: none"> • Complete a visual inspection by monitors. • Facilitate visit by the elders every year before the pits are breached. • Allow TG staff and elders to check the TK criteria.
<p>After the breach, and annually afterwards</p> <p><i>“When it rains or snows, the water the snow would melt. If we break the dyke, what would happen if the water starts flowing into the [lake]? And because of the waves, the water will be flowing into the open pits. What would happen if the water flows back and forth from the pit to the open lake in Lac De Gras? The fish, the aquatic life might be affected.” (Elder Joseph Judas, Nov. 11, 2020)</i></p>	<p><i>Monitor:</i></p> <ul style="list-style-type: none"> • Take water samples in the pit at several different times of year and compare to AEMP benchmarks and guidelines. • Sample at various depths and locations in the pit, with allowances made for fewer samples. • Conduct more frequent or continuous monitoring in the pit(s) to show, for example, if the PK water is slowly mixing. • Continue AEMP monitoring, including far field monitoring – such as areas that are far away in Lac de Gras and areas that are close in Lac de Gras right beside the pit (possibly MF3-2 and MF3-7), as well as in the pit itself and compare data from those three locations. • Maintain at least 10 years of annual monitoring, and then continued (perhaps less frequent) monitoring as part of the AEMP until at least 2050. • Reduce (or increase) monitoring frequency over time based on results, and in consultation with the Tłıchǫ Government. Elders and TG prefer to see stable conditions for a at least a few years after reconnection before any reductions in monitoring. • Conduct verification monitoring. <p><i>Experience:</i></p> <ul style="list-style-type: none"> • Complete a visual inspection by elders and monitors. • Allow monitors and elders to check the TK criteria.



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3. Conclusion

...The lake itself is quite sensitive... we might feel forever consequences that will never be repaired. If we make a mistake or the company make a mistake on our behalf ... we might destroy the fish habitat and the whole stream where people are living. For me, I am concerned that we just don't want to rush making decisions as to what we should plan on doing ... because we have to live with it after the mine is closed and left the country. This is my concern. (Elder Joseph Judas, 12-Nov-2020)

The level of water quality protection needs to be adequate for Tłıchǫ cultural use. This means that water quality must meet the guidelines for protection of most sensitive species that use the water (as set out by scientific modelling, independent panel review, and monitoring), in addition to being understood as 'good' from a cultural or TK perspective. Harmonizing the relationship between scientific modeling and TK perspectives can be achieved through a robust monitoring approach that is developed, designed, and implemented by the Tłıchǫ Government, working closely with Diavik.

The water licence, future amendment, or WLWB-approved closure criteria should be clear, specific, and encompassing of elder guidance about what level of protection must be achieved and maintained in the pit lakes and Lac de Gras.

References

Diavik Diamond Mine, NT. 2019. Diavik Traditional Knowledge Panel Session 12: Options for pit closure. Sept. 12-16, 2019.

Tinis, Scott, Shahid Azam, Scott Wells. 2020. Diavik mines PKMW hydrodynamic and water quality modelling: Independent panel final report.