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Charlie Catholique, Chair Environmental Monitoring Advisory Board PO Box 2577 Yellowknife, NT X1A 2P9 Canada

1 September 2021

Dear Mr. Catholique:

Subject: DDMI 2020 Environmental Agreement Annual Report, revised

Please find enclosed Diavik Diamond Mines (2012) Inc.'s (DDMI) revised/finalized 2020 Environmental Agreement Annual Report (the Report) for the Diavik Mine as per Article XII of the Environmental Agreement. The revised Report addresses comments and recommendations from the Environmental Monitoring Advisory Board and the Government of Northwest Territories in July and August 2021 following a review of DDMI's Draft Report submitted to stakeholders in July 2021. DDMI's revisions to the Draft Report are highlighted in the attached Table of Conformity.

Please do not hesitate to contact the undersigned if you have any questions related to this submission.

Yours sincerely,

Kofi Boa-Antwi

Superintendent, Environment

cc: John McCullum, EMAB

LeeAnn Malley GNWT-ENR

Attachment: DDMI 2020 Environmental Agreement Annual Report, revised

	Reference	Comment	Recommendations	DDMI Response/Location in 2020 EAAR	
2020	2020 GNWT Comments				
1	Table of Contents	Appendix listing is not provided.	Include Appendices in the Table of Contents	Table of contents updated to include appendices.	
2	Executive Summary	The plain language executive summary translations, required by Article 12 (c) xiii of the Agreement, are not included. GNWT assumes they will be included once the draft is finalized. Table 1 indicates that the translation summaries will appear in report section i; however, page i is the coverage, and Table 1 may have a typo.	Update with the plain language summaries under section iii of the report, where the English plain language summary is found. Revise Table 1 for the page number where translation summaries can be found.	Translations were not available at the time the draft EAAR was submitted and are now included. Table 1 has been updated to reflect where the translated summaries are found.	
3	New Technologies and Energy Efficiency (paragraph 3, page 103)	Similar to the figures provided in paragraph 1, how did the energy saving projects mentioned in paragraph 3 improve the overall energy needs/consumption of the mine? Can more details be provided as to how these projects made a measurable difference? As an example, LED lights aren't new technology, and the savings is likely marginal compared to the energy needs of the mine. If the energy savings isn't meaningful, maybe this would be better described as activities to follow green building best practices?	Provide additional detail or quantify the energy efficient savings that have occurred in 2020 with respect to the projects identified in paragraph 3. If some activities are immeasurable, it is recommended that this is explained in another meaningful way.	DDMI included energy savings and diesel offsets to this section where savings are known (pg. 103). DDMI would like to add that although the use of LED is not new technology, a large enough amount of LED technology is used at the Mine site to make a meaningful positive impact with respect to energy savings.	
4	Compliance (section 6, page 104)	How did COVID 19 restrictions impact Diavik or change the way work was done in previous years? Some details are provided under various sections such as monitoring or engagement. COVID 19 would be relevant for summary under the Operational Activities section.	Recommended COVID 19 summary details.	COVID 19 summary added to Operational Activities and Compliance section (pg. 104).	
5	Compliance (section 6, page 104)	How did COVID 19 restrictions impact compliance inspections?	Include any relevant information - i.e. Frequency, onsite presence, challenges, other outcomes or observations, etc.	See DDMI response to GNWT comment 4.	

	Reference	Comment	Recommendations	DDMI Response/Location in 2020 EAAR
6	PDF Page 134 - Table I-A Effectiveness of Measures	Table I-A indicates that TSP levels in 2020 were below the GNWT 24-hr Ambient AQ guideline.	Revise as needed.	Revised year to 2018 when DDMI stopped monitoring TSP for reporting purposes.
7	PDF Page 135 - Table I-A Effectiveness of Measures	Table I-A indicates that two TSP monitors were installed at the mine site. Are TSP monitoring activities occurring at the site?	Revise as needed.	TSP monitoring for reporting purposes was discontinued in 2018 based on results of the TSP program in relation to Air Quality modelling predictions. Included text "not monitored for reporting purposes after 2018" for clarity.
8	Page 61 - Climate and Air Quality	The report states that TSP levels have generally remained below NWT Guidelines. In the context of the 2020 Annual report, TSP was not conducted.	Revise as needed.	Revised text to include dates TSP monitoring was conducted at Diavik.
9	General Comment - Climate and Air Quality Section	The report states that TSP levels have generally remained below NWT Guidelines. In the context of the 2020 Annual report, TSP was not conducted.	Revise as needed.	See response above.
10	General Comment - Climate and Air Quality Section - Page 61	The report states that DDMI elected to discontinue TSP monitoring. The section does not reflect the ongoing concerns that EMAB has communicated in relation to this program. Given that the background context is provided for readers to understand why the monitoring was discontinued, it would be relevant to share a similar level of detail regarding the Agency's feedback on the matter to ensure a more transparent account. How was EMAB feedback used in the decision process? Was Article 7.6 (a) considered as part of this decision?	Consider adding details regarding engagement to support DDMIs decision, and the basis of concerns that remain for EMAB. Include details about the EAQMMP review that was initiated by EMAB. Include any details as it relates to Article 7.6 (a)	A note on the Ministerial investigation initiated by EMAB has been included in the EAAR (pg. 61). DDMI will provide additional details in a subsequent EAAR when the investigation is complete. The two TSP samplers were installed in 2013 to monitor TSP at the mine to verify DDMI's 2012 Air Dispersion Modeling (ADM). The ADM was updated in 2012 following significant engagement with ECCC, GNWT, and EMAB. In the approved EAQMMP, reviewed by members of

	Reference	Comment	Recommendations	DDMI Response/Location in
				2020 EAAR
				each impacted Indigenous groups through the approval process, DDMI committed to temporarily monitor TSP for one year, after which the monitoring would be re-assessed to determine if the data was valuable and still required. Before conducting a re-assessment of the TSP monitoring, DDMI operated the TSP samplers from April 2013 until December 2018. Based on results of the approved temporary TSP program in relation to Air Quality modelling predictions, the program
				was discontinued.
11	Section 2 - Environmental	The section provides a listing, but the abstracts are limited. Abstracts could be more detailed by	Consider revising the abstracts to include more program/plan summary	DDMI has updated Table 3 contents to include additional program
	Programs and Plans	including information such as: monitoring methods, frequency of data collection, program objectives etc.	information.	summary information where applicable.
12	AEMP comment	ENR reviewed the 2020 AEMP Annual Report (due July 29) and recently provided comments on the 2017-2019 Aquatic Effects Re-Evaluation on July 22. DDMI should ensure that conclusions in the 2020 EAAR are consistent with the 2020 AEMP Annual Report and previous comments on the AEMP Annual Report and the 2017-2019 Re-Evaluation should be considered where applicable.	Revise if needed for the final submission.	Acknowledged. DDMI notes both the 2020 AEMP and 2017-2019 Re-Evaluation reports have not been approved by the WLWB at the time of submission of the 2020 EAAR; however, based on context and clarifications provided during the review process, revisions to specific text did not change the overall conclusions of the Reports or text provided in the draft 2020 EAAR.

EMAI	EMAB Comments on Draft 2019 EAAR				
	Reference	Comment	Recommendations	DDMI Response/Location in 2020 EAAR	
1	Plain Language	Plain language in the executive summary is good. Plain language could be improved throughout thebody of the report	Plain language could be improved throughout thebody of the report	Acknowledged.	
2	Executive Summary Translations	Translations of the Executive Summary into Dogrib/Tłįchǫ, Chipewyan, and Inuinnaqtun are not includedin the Draft 2020 EAAR, as required by section 12.1 (c-xiii) of the EA. Please include these translations in the final report.	Please include these translations in the final report.	Translations were not available at the time of DDMI's submission of the draft version. The final report will include Dogrib/Tłįchǫ, Chipewyan, and Inuinnaqtun translations.	
3	Monitoring Programs	It appears the information provided in Table 3: "Monitoring Programs for the Diavik Mine" is accurate and complete.	There are no recommendations regarding this table by EMAB at this time.	DDMI has included additional program information in Table 3. Please see DDMI's response to GNWT comment #11.	
4	Climate and Air Quality Reporting	Page 15, paragraph 3, Diavik notes that each year, sampling results are "compared with the former British Columbia (BC) dustfall objective for the mining, smelting, and related industries.". Diavik nowfollows Alberta guidelines for industrial/commercial, and recreation/residential areas. Diavik should update this paragraph to reflect this change.	EMAB believes Diavik's EAQMP has not met all of its commitments in the Environmental Agreement, particularly in regards to TSP monitoring. EMAB initiated a Ministerial investigation on the discontinuation of the TSP monitoring and is still waiting upon GNWT-ENR investigation results. EMAB believes this should be included in the 2020 EAAR.	DDMI has updated paragraph 3 on page 15 to reflect changes of dustfall comparisons from BC to Alberta guidelines. Climate and Air Quality section (page 61) has been updated to include reference to Alberta comparisons and to the Ministerial review.	

5	Vegetation and Terrain	Page 68, Table 8 "Cumulative habitat loss each year" shows that there was a net gain of 0.13 km² (9.78 km² in 2009, to 9.65 km² in 2010), however, in Diavik's 2010 EAAR they state that there was no habitat loss/gain from 2009, and show a total habitat loss from mining activities remained at 9.78 km² from theprevious year.	EMAB recommends that Diavik update Table 8 on page 68 of the draft 2020 EAAR to represent the values from past EAAR's.	DDMI has updated 2010 cumulative habitat loss value to reflect the 2010 Wildlife Monitoring Report value of 9.78 in Table 10 (page 68).
6	Wildlife Monitoring	This section was clear and concise. However, plain language could be slightly improved. In the grizzly bear section (pg. 86, second bullet point, sixth sentence) it states "Data analysis indicatedthat there have been no negative impacts on the regional population of grizzly bears (i.e. populations are stable to increasing)". It is recommended that this be clearer as to whether populations are increasing or stable or both.	Diavik has not mentioned the July 2020 WMMP. EMAB believes Diavik should note this in the 2020EAAR.	DDMI has revised the text on pg. 86, to "stable or increasing" and has provided clear wording for the reader i.e. populations have been stable or increasing (depending on the year), but never decreasing. DDMI referenced the most recent updated WMMP submission in Table 2 of the Management & Operational Plans section in the draft EAAR provided to EMAB. Additional context has been added in Table 2 to include reference to the 2020 WMMP submission.
7	Water and Fish Monitoring	On page 25, paragraph 4, the plain language should be improved. The text within this paragraph shouldbetter explain the the corresponding figure (Figure 6).		Acknowledged. DDMI has revised text and included additional details regarding the ROI ranking system for the reader to better understand the corresponding figure.
8	Community Engagement and Traditional Knowledge	Page 97, paragraph 5, discusses the complications of community engagement and Covid-19 restrictions. EMAB recognizes and agrees with the difficulties surrounding Covid-19 restriction and commends Diavikon their efforts. However, EMAB	EMAB recommends Diavik outline (other than providing responses to previous session) what the agenda might look like for the next TK panel session.	DDMI has expanded use of technology to include video calls and meetings. The agenda for future TK panel sessions are continually evolving

		believes Diavik should expand on what specific adaptations were made to ensure the needs of communities were met during this time.	and are not finalized at the time of reporting of the EAAR. As such, DDMI will continue to provide responses to previous year sessions in annual EAARs.
9	New Technologies and Energy Efficiency	Page 103, paragraph 5, discusses the new food waste dehydrator and a more efficient waste incinerator.EMAB believes these two technologies should have a more comprehensive summary in accordance withthe EA section 12.1 (c-xi).	DDMI has provided additional details regarding the new food waste dehydrator and waste incinerator in Section 5. New Technologies and Energy Efficiency on pg. 103.
10	Operational Activities and Compliance	EMAB is pleased to see that Diavik has compiled and added a list of planned 2021 key operational activities but would like to see additional detail and a more comprehensive summary in accordance with the EA section 12.1 (c-v).	DDMI has provided additional details to planned operational activities where appropriate. DDMI would like to note details around various programs are included within the Report.
11	Appendix II: Summary of Adaptive Management & Mitigation Measures	In aspect "Water", under column "Adaptive Management Response", the third bullet point states "Treatment plant expanded, and some components re-designed to accommodate additional water flowfrom underground". EMAB would like to see this point expanded to include specific components that were re-designed. In aspect "Water", under column "Mitigative Measures", the eleventh bullet point states "Repairs to damaged infrastructure to prevent seepage". EMAB would like to see that point expanded to include what specific infrastructure damage and repairs occurred. If there are too	-DDMI has provided details on the NIWTP expansionDDMI has revised text to include details regarding repair work to intercepted water infrastructure i.e. liners and interception wells. - DDMI has revised the text to "addition and removal of dustfall/snow core stations as required based on results or operational changes" as a general adaptive management response. The addition or removal of stations to these programs is

many to include, list generalinfrastructure damage and repairs.

In aspect "Dust", under column "Adaptive Management Response", the seventh and eighth bullet point state that additional sample/monitoring stations were added to the snow and dustfall programs. EMAB would like Diavik to clarify how many additional stations were added.

In aspect "Air Quality", under column "Adaptive Management Response", the sixth bullet point states "Added monitoring of TSP in 2013 with 2 on-site stations". EMAB is of the opinion that this point shouldbe removed, as Diavik is no longer actively monitoring TSP.

In aspect "Air Quality", under column "Mitigative Measures", the tenth bullet point states "2 TSP monitors installed at the mine site". EMAB believes Diavik should remove this bullet point or note that the TSP monitoring initiative has ended.

expansive and a detailed account of changes between 2001-2019 can be found in DDMI Dust Deposition Report.

-DDMI has retained this text but has revised it to state that monitoring of TSP for reporting purposes has not occurred beyond 2018.

-DDMI has retained this text but has revised it to state that monitoring of TSP for reporting purposes has not occurred beyond 2018.



2020 Environmental Agreement Annual Report

Diavik Diamond Mines (2012) Inc.

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Executive Summary

The Diavik diamond mine is located on the East Island of Lac de Gras, in Canada's Northwest Territories, approximately 300 kilometers northeast of the capital city, Yellowknife. Diavik signed an Environmental Agreement (the Agreement) with five (5) Aboriginal organizations and the federal and territorial governments in 2000. The Agreement says what Diavik is to do to protect the environment while operating the mine. There was also an Environmental Monitoring Advisory Board (EMAB) formed as part of the Agreement; the Board is a public watchdog of the regulatory process and the implementation of the Agreement. The Diavik diamond mine was in its eighteenth (18th) year of operations during 2020. Mining at the A21 pipe (mineral deposit) commenced 2018 and continued in 2020 and underground mining continued at A154 and A418 pipes.

This report talks about the results of Diavik's environmental monitoring and management programs during 2020. Copies of the reports listed can be found in the EMAB registry (in their office, or <u>on-line library</u>) or the Wek'èezhii Land and Water Board <u>public registry</u>.

Summary of 2020 Environmental Activities

Mine Footprint

In 2020, the Mine footprint increased by 0.16 square kilometers. The total loss of terrestrial and aquatic habitats to date from Diavik mining activities (11.41 square kilometers) is less than that predicted in the original Environmental Assessment for the Diavik Diamond Mine Project. The current footprint is expected to be at its maximum now for operations, except for the Waste Rock Storage Area South Country Rock Pile (WRSA-SCRP) and Waste Rock Storage North Country Rock Pile (WRSA-NCRP) footprints that may slightly expand during reclamation activities.

Re-vegetation

In 2004, Diavik started doing research on ways to help plants grow back after the mine closes. This research was finished in 2017. The goals were to determine: how best to grow plants from seeds, how effective different planting methods are on plant growth and which conditions improve plant growth over time. The research looked at if it is good to use different planting techniques in patches around the mine site at closure, as this is something that has worked well for other large sites. This work also included more monitoring of the research plots from 2004, to see how well they were doing over time. A final report was completed in 2018 with results considered as part of the latest version of Diavik's Closure and Reclamation Plan (Version 4.1).

Wildlife

Caribou monitoring continued to focus on behavioural observations (watching caribou to study their reaction to mining or other activities) when caribou were present in the study area. Movement patterns for the northern Bathurst caribou migration support the idea that the northern migration

route to the west or east side of Lac de Gras is influenced by their location on the winter range. When compared to the prediction that caribou would move east of the lake in fall, the results for 2018 differ from this prediction and more collared caribou have been moving west around Lac de Gras for the southern migration since 2011. Caribou aerial surveys were not required or completed in 2020. Diavik is waiting for recommendations and direction from the Zone of Influence Technical Task Group of Department of Environment and Natural Resources of the Government of the Northwest Territories for guidelines on future caribou aerial surveys. There were no caribou deaths related to the mine in 2020 and there we no hearding events.

Wolverine, grizzly bears and falcons continue to be present in the mine area. Incidental observations are recorded to track the number of times a species is seen on site, including if they are using any of the mine buildings for denning or nesting. There was one raptor death on the mine site in 2020, the cause of death was not identifiable. There was also one wolverine and a grizzly sow and two cubs relocation. In September 2020 a grizzly sow and cub were euthanized after the sow had entered a main building twice posing a safety risk to personnel. One caribou was injured in an incident not related to Diavik mining activities and was later euthanized by Environment and Natural Resource officers. Regional monitoring programs are also conducted in partnership with the Government of the Northwest Territories and other mines. The most recent grizzly bear hair snagging DNA study was conducted during 2017 and results showed that there have been no negative impacts on the regional population of grizzly bears in the Slave Geological Province (i.e. grizzly bear populations are stable and increasing) due to the Diavik mine.

Vegetation, Dust and Air Quality

Snow samples are taken every spring and they are melted to test for the amount of dust on the snow and the type and amount of chemicals in that dust. Dust particles are also captured in collectors and checked to see if there are patterns in the amount and location of dust from the mine. During 2020, the amount of dust was generally less than in 2019. As expected, there was less dust seen at sites further from the mine. The level of chemicals within the dust-covered snow remained below Water Licence levels and were generally lower than those recorded in 2019. Permanent Vegetation Plots and a lichen monitoring study are checked every five (5) years. They were last done in 2016 and showed reduced levels of dust on vegetation.

In 2020, a total of 80.3 million litres of diesel were used to operate the mine site.

Water and Fish

Diavik continued to do the Aquatic Effects Monitoring Program (AEMP) and onsite Surveillance Network Program (SNP) monitoring in 2020. The AEMP studies different parts of the lake in different years in order to identify possible effects to Lac de Gras from mining activities. The types of samples taken close to the mine (near and mid-field stations) and far from the mine (far-field stations) in 2020 included water chemistry (quality) and nutrients, and plankton (tiny plants and animals in the water amount and type), and fish. Traditional Knowledge (TK) studies for the AEMP did not take place in 2020; however, the results of both the fish inspection and water tests for the 2018 AEMP TK Study

found that the scientific analysis supported observations made by TK holders that the present status of the fish and water in Lac de Gras is good.

Elevated concentrations of nutrients extending to various distances from the Mine (depending on variable and season) suggest the Mine is increasing nutrients in Lac de Gras.

Changes to the lake are mostly caused by an increase in nutrients from the groundwater and blasting. Diavik tries to reduce the amount of nutrients that reach Lac de Gras by using blasting controls, careful selection of blasting materials as well as water management and treatment.

Community Engagement/Traditional Knowledge

Diavik values opportunities to share updates on environmental monitoring and closure planning progress with community members. Diavik works with each Participation Agreement (PA) organization to try to determine a suitable way and time to carry out such events. A summary of Diavik's engagement about the environment with the PA community organizations during 2020 is provided in this Report.

In 2020 in-community and in-person engagements were impacted due to Covid-19 and most engagements were completed by telephone and videoconference. Diavik worked with community partners to ensure that engagements were adapted to suit the needs of community during this time. Use of technology, translation and other methods were modified to maintain engagement. While face to face engagements are preferred in any year, the consideration of safety, health and wellbeing of people and community was prioritized. Diavik also tries to bring community members to the mine site so that they can see the mine and observe the surrounding environment with their own eyes. While it is impossible to bring everyone to site, the hope is that those who have been involved share their experience with others back home in the community. In 2020, DDMI planned to have a community person assist in the wolverine track survey, however because of the COVID-19 pandemic restrictions during that time, the visit was cancelled.

Diavik has a Traditional Knowledge (TK) Panel with a primary focus of considering and incorporating Traditional Knowledge into mine closure planning. In 2020, the TK Panel did not meet due to COVID-19 restrictions.

New Technologies & Energy Efficiency

There are four (4) wind turbines that operate at the Diavik mine, and staff continued to make the most of the efficiency of these turbines throughout the year. The wind turbines offset 4.7 million litres of diesel fuel use and approximately 13,000 tonnes of emissions (CO_2e) in 2020. The turbines have flashing lights to help deter wildlife and reduce bird strikes from the rotating blades. Additionally, approximately 139,278 litres of waste oil was collected to be used in the waste oil boiler during 2020. Since it was commissioned in 2014, a total of over 1.5 million litres of waste oil has been burned to create heat, rather than having to ship it off-site.

In 2018, Diavik changed how the Process Plant operates. The Plant removes diamonds from kimberlite rock, and the rock ends up as either a dry coarse sand or a wetter fine sand. The Plant used to make

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more fine than coarse sand, but the fine sand is harder to deal with at closure. Diavik tested new technology before making this change; the positive results allowed Diavik to continue to use this method through 2020.

Diavik continues to look for new ways to reduce the amount of energy used. This includes heat recovery from the electricity generators and boilers to heat buildings, use of LED (less energy required) lighting in buildings, removing unoccupied buildings, and turning down the heat in buildings that are not used often.

In 2020, DDMI installed a new more efficient incinerator to burn waste and installed a kitchen food waste dehydrator that reduces the weight and volume of kitchen waste that goes to the incinerator by 90 percent. The dehydrated waste is odourless and because of this it is less of a wildlife attractant.

Compliance and EMAB

Diavik received four direct communications or letters expressing concerns from PA partners about the mine or its operations during 2020. All cases were subsequently managed and closed. The 2019 Environmental Agreement Annual Report was deemed to be satisfactory by the Deputy Minister of the Government of Northwest Territories, Environment and Natural Resources on December 16, 2020. A copy of the Deputy Minister's letter on the 2019 Environmental Agreement Annual Report is provided in Appendix I.

The Environmental Monitoring Advisory Board and Diavik exchanged letters relating to topics such as the budget, Traditional Knowledge and the TK Panel, as well as reviews of various environmental monitoring programs.

Thank you/Marsi Cho/Masi Cho/Quana to the Kitikmeot Inuit Association, Tłįchǫ Government, Yellowknives Dene First Nation, Łutsel K'e Dene First Nation and the North Slave Métis Alliance for the efforts of their staff, businesses, and individual members who worked with Diavik staff in 2019. The continued support of Diavik's Participation Agreement partners helps to make sure that environmental impacts are minimized, and resources are used wisely.

K'àodèe Godi Nihtl'è Nek'òa

Diavik sopombakwee gha sopombak'e, Ek'atı k'e East Island göyeh k'e gözo. Canada wek'eezhii Edzanek'e Sopombak'e kogolaa gots'o taikw'eenoo echi, chik'e- k'abatso ts'onee gozo hot'e. 2000 eko Diavik, Dosoohiji silai xageezaa, Įdaa Deek'aowodee eyits'o Edzanee Deek'aowo goxe De Tsigowii Ch'a Naowoo (EA) k'e ediizi dek'eneyiiti'e įle. Eyii naowo gehtsii sii Diavik eyii sopombak'e k'e eghalageda wenits'o de tsigowii ts'a ayii dagele t'a de xogiihdi ha dek'eehti'e. Eyii Naowo wexe De Wexoedii k'e Dehkw'ee (EMAB) weholi; Eyii wek'e dehkw'ee sii gonek'e do hazoo gha kehogiihdii doo agiit'e. daani naowo dek'eehti'ee k'ee gighalada eyits'o Naowo Holii k'ee ek'izeh. 2020 k'e Diavik, soombakwee gha soombak'e gozoo sii hoono-daats'o-ek'edi (18) xo wek'e eghalada hot'e. Soombakwee gha ewee A21 (soombakwee whelaa k'e) 2018 k'e wexehoowo ile eyits'o 2020 ts'o wek'e eghalada jle, eyits'o ewee A154 eyits'o ewee A418 golaa ilaa degoti'a wek'e eghalada.

Dıı godı nınti'è wek'e Dıavık 2020 k'e dè gozoo hogundu eyits'o dàanı gighalaıda ts'ihzo dii wek'e dagon'e dek'eenti'e. Wegodii nınti'e dek'eenti'e sii EMAB gininti'eko whela hot'e (gininti'eko, hanıle-de satsook'alemı k'e dek'eenti'e) hanıle-de Wek'eezhii Dee eyits'o Tı Naowoo k'e Denkw'ee gininti'eko whela.

2020 K'E DÈ TSĮGOWII TS'À WEK'E EGHÀLADA WEGODIÌ

Soòmbak'è Wek'è Gòzoo

2020 k'e Sqòmbak'è wekeè k'è gòlaa sìı 0.16 dè hagoįhtso ts'ò įdoò adzà. Dıı dzęè ts'ò Davık sqòmbak'è wek'e eghàlada ts'ıhrò hazqò t'à dè k'e eyits'o tı yìı nàdèe k'è wedihòłį sìı (11.41 square Kilometers) dakwełòò Dè tsìgowii ts'à Diavik Diamond Mine Weghàladaa wegho nadąà gogjįde nahk'e dek'arì hot'e. Dìì wek'e eghàlada ts'ihrò denahk'e wek'è gòroq agode ha, Kwets'ìi Whelaa k'è South Country Rock Pile (WRSA-SCRP) eyits'o Kwets'ìi Whelaa k'è North Country Rock Pile (WRSA-NCRP) eyìi t'a dè sììnagorjį nidè wek'è gòroq sìi yaàzea gochà agode ha soni.

Dènagoehse

2004 ekò Diavik, sqòmbak'è wedaàto nidè dàani it'ò nadesee gha gixàeta xèhogiihwho ilè. Eyii gixàetaa sii 2007 k'e gighonot'e ilè. Ededi agiiwoa edaani nidè it'ò wejii gots'o denahk'e it'ò nezii dehsheè ade ha, dàani eladii xàraa k'è dè k'e nègele t'à nezii dehseè ade ha, mòht'a dàgòht'e ghàa eyits'o wek'e whaà hoòwo th'axoò. Eneèti nidè soòmbak'è gomoò dè k'e eladii it'ò dè k'e negele t'àget'ii sii asii nezii dehshe gha gixàehtaà aget'i. Soòmbak'è eyii-le gochàa gòlaa gha hagiilàa t'à nezii wek'e eghàladà. Hani weghàladaa wexè 2004 gots'o dè k'e hagogiilà wexàetaa sii denahk'e wexoedi ade ha, wek'e whaà hoòwo th'axoò asii it'ò nezii dehshe gha gixoehdi. 2018 k'e wenihth'è node gho nahòt'e ilè, asii wegòt'oo sii Diavik dàani Neneètii xè Siinagodlee K'e Eghàladaa gha yatigòò wòhda weta nagiiroo hoowo hot'e (Version 4.1).

Tıts'aàdıı

Ekwǫ įłaà wexoedıı hot'e, gıxàetaa gozoo k'e aget'įį dàanì k'ehogezaa siı gıghàts'eda (kwe xàzee; asiı hagot'įį nįdė dàget'įį k'ehogezaa gıghàts'eeda). Hoziı goekwǫ dàanì k'edèe sìi Ek'ati gots'o dą hanì-le-dè k'abatso nadeezaa nįdė xok'e edįį k'ehohde ts'ihzo agot'į hagįįwo hot'e. Xat'ò k'e ekwò Ek'ati gots'o kabatso ts'ò nadeeza ha hodi ghats'eda nįdė 2018 k'e hagodza-le, eyits'o 2011 gots'o sazįį ts'ò nadeeza gha dezoatło gik'o k'e satso whelaa sii Ek'ati gots'o dą ts'ò nageeza įlė hot'e. Nįhtł'èk'etaa t'a ekwo ghageda t'a aget'įį-le, hanì-le-dè įłaa hagehzįį-le. Diavik įłaa nageėhzį, Edzanèk'e Dèek'aowo gots'o Dè gozoo eyits'o wek'e asii nagoehsee ginįhtł'èkò gots'o Zone of Influence Technical Task Group ginįhtł'èkò naowo gehtsįį eyits'o daanì įdaa nįhtł'èk'et'aa t'a ekwo xogiihdii gha k'ehogeza gha nageèhzį. 2020 k'e soombak'e gozoo t'a ekwo ełaįwo gòhłį-le eyits'o ekwo nagets'ezii whìle.

Nògha, sahcho eyits'o tatsea Įłaà sopmbak'è gòpo gà aget'į. Wek'aga wexoedii sìi dàtło peht'aà tits'aàdii dàhòt'įį eko wègoèht'įį sìi dek'enègetl'è. Eko sopmbak'è gòpo gha kò gòlaa t'à epo hanì-le-dè et'oh gogehtsį nįdė wexè dek'eèhtl'è. 2020 k'e sopmbak'è gà det'o įlė ełaįwo, ayìi t'à ełaįwoo sìi wek'èhodzo-le. Eyìi wedę nògha įlė eyits'o sahcho dets'è wezaa nàk'e wexè t'asjį nagogeèwa. 2020, łiwedatèe Zaà k'e sahcho dets'è wezaa xè ełagogiįhdė, sahcho dets'è nàkeè kò gochàa gòpo goyagiįde ts'ihpò, do goyii eghàlageda gigho hoedzį t'à. Ekwò įlė wehoepaa, sopmbak'è gòpo do eghàlagiidèe ts'ihpò adzà-le, nodea Environment and Natural Resource gha kw'ahti ełagiįhwho. Eko nèk'e asii hogiihdi k'e eghàladaa, Edzanèk'e Dèek'àowo eyits'o sopmbak'è eyìi-le gòlaa ełexè wek'e eghalada. Dìi whaà-lea sahcho weghàà et'èikaa wets'o DNA xàetaa sìi 2017 k'e hadlàa. Ayìi wegòt'o sii eko sahcho dàtło gòhłįį sìi sopmbak'è gòpo ts'ihpò gixè ładįį agòdzà Slave Geological Province k'e wègoat'į-le (i.e. sahcho dàtło gòhłį xè asagòdzà-le, eyits'o doò at'į).

Jt'ò Dehshee, ?ehtł'è Daedıı eyıts'o Nıhts'ıı Ts'ejiı

Edaèhk'ǫ taàt'eè zah k'ehotaa gha zah gihchi; zah zeèk'ǫǫ tł'axoǫ weka zehtł'è dàtłǫ gha gik'aahta, nàèdi dàhòt'įį, dàtłǫ zehtł'è ta whela gha gik'aahta. ʔehtł'èkwìa nàgehtsįį asii yìi wek'èhodii. ʔehtł'è dàtłǫ eyits'ǫ so̞o̞mbak'è gòzo̞o ts'o̞ dàgo̞ọwa xè dàgot'įį gha gik'aahta. 2020 ekò zehtł'è dàtłǫ go̞hłįį sìi 2019 nahk'e dek'aziį įlè. Hanì ha wexats'eli k'èę so̞o̞mbak'è gozo̞o ts'o̞ go̞ọwa gòzo̞o sìi denahk'e dek'aziį zehtł'è wègoat'į. Dàgo̞ọwa ts'o̞ nàèdi zah ka zehtł'è yìi sìi Ti Nintł'è gha dàgo̞ọwa dek'eèhtł'èe sìi Įłaà wenahk'e dek'azi̇ ho̞t'e, eyits'o̞ 2019 k'e dàgo̞ọwa dek'eèhtł'èe nahk'e ats'o̞o̞ dek'azi̇ wègoat'į. Whaa įt'o̞ dè k'è gòzo̞o eyits'o̞ adzi̇į wexoedii xàetaa sįlài (5) xo taàt'eè wek'ahota. 2016 k'e no̞dè wek'ahoòto̞ Įlè, įt'ȯ dehshee k'e zehtł'è dek'azi̇ adzà.

2020 k'e hazoò t'à tłeet'oo 80.3 lemìiyoò litres haàtło t'à soòmbak'è gòzoo k'e eghàladà.

Tı eyits'o Łı

Diavik įłaà Ti xè Ładįį Agot'įį Wexoedii k'e Eghàladaa (AEMP) eyits'o 2020 k'e soombak'ė gòroo eko goxogiihdi k'è gòlaa (SNP). AEMP asii xàgetaa sii xo eładįį k'e Ek'ati wek'e eładįį gòroo gots'o ti k'ageehta, soombak'è asii xè eghàlagedaa ts'ihròo edahxo Ek'ati xè ładįį agot'į nįdė gixàetaà aget'į. Dii hani ti wòhdaa gihchi, soombak'è gòroo wegàa, eyits'o wets'ò goombak (kòa gòlaa) ti gihchi t'à ti weta dàgoht'e (quality) eyits'o ti weta įt'ò nechà-lea dàtło eyits'o asia dàtło weta nàdèe, hanii wexè, ti dàtło eyits'o ti dàhot'įį eyits'o li si gha 2020 k'e ti ta gok'ageèhto įlė. AEMP 2020 k'e Whaèhdoò Nàowoò (TK) k'èè asii xàetaa sii hagįįlà-le; hanikò 2018 k'e AEMP TK Asii Xàetaa gha Whaèhdoò Nàowoò gitòo git'aà li eyits'o ti k'ahoòtoo t'à dìi lį eyits'o ti xè nezįį agòht'e gedi.

Įt'ò nechà-lea tıta whelaa sıı Įdoò adzàa, soʻombak'è gòroʻo gots'oʻ t'asjı Įdaà naetł'òo (asıı ts'ıhròʻ agot'ı eyıts'oʻ ayıı zaà k'e agʻoht'e nıdè) t'à soʻombak'è gòroʻo wets'ıhròʻ deròʻ įt'òʻ nechà-le Ek'at'ı ta at'ı hagedı.

Tı weta ładįį agot'į nįdė dėgoti eyits'o kwe nàek'èe ts'ihoo įt'o nechà-lea įdoo agot'į. Diavik, eyii įt'o nechà-lea tèe whelaa sii dek'aoį Ek'ati ts'o neweėtį gha hogeehdza, kwe naek'èe xogiihdii t'aa, kwe naek'èe xaoaa gots'o nezį gįįwoo sii t'a get'įį, eyii xè ti xè nezįį eghalageda eyits'o ti siiojį t'a edegeehdza.

Kộta Gıxè Eghàlats'eda / Whaèhdoò Nàowoò

Diavik, dè wemoò tsìgowii ts'à wehoedii eyits'o soòmbak'è wedaèti gha nadaà k'ehogeraa t'à hawee sii dìi wegodìi wheroo t'à kòta xàzhièlaa xè gogedo ha gijwo. Diavik, Kòta gots'o do xè dàanìi dè xè gòroo eyits'o soòmbak'è eneètij gha nadaà k'ehogeraa t'à do xè gogedo gigha wet'àarà. Diavik, Do xè Agot'ij Nàowoò hazoò ghaxeèt'e goxè eghàlada, hanìidè dàanì rehkw'i goòrà gighàlada gha hogeèhdzà ha, eyits'o dàht'e hagode gha si. 2020 k'e Diavik wegodìi nek'òa k'e do xè agot'i t'à dè gòroo k'e eghàlagidàa sii dii godi nek'òa k'e dek'eèhti'è.

2020 k'e kỳta xè geèhkw'ee eyits'q do xè k'ehogeaa sìi xè ładii nèhòkw'o Covid-19 wets'ihao, eyit'à do xè k'ehogea hailèe sìi wet'àgots'edee eyits'o video t'à ełegeèhdi t'à agedzà. Diavik, do xè eghàlageda haniidè goxè ayii k'e eghàlagedaa sìi dìi hagòht'e gha kòta do nàdèe sìi hotii git'àhohwhi ha giiwo. Satsòkwì t'àhot'ii, do gha etaàtii eyits'o eyii-le k'èè k'ehots'eaa sìi xè yaàzea ładii adlà. T'ahoòyii ghoò k'e elets'ò nats'eaa xè k'ehots'eaa ts'iiwo kò tàdaa ts'à edek'èts'edii, hotii ts'edaa, eyits'o kòta do xè asagòht'e-le eyìi dakwelòò gogha wet'àaaà hot'e. Diavik, kòta gots'o do soòmbak'è gòaoo ts'ò gogewa gha hogeèhdzà, haniidè ededaà t'à soòmbak'è gòaoo ghàgeda ha eyits'o dè wemoò gòaoo xè dàgòht'e k'e k'eget'i ha. Do hazoò eko ts'ò k'ets'ele ha wèhoedii-le hanikò do goxè agiat'ii sii gixè dàgoat'ii t'à edahxo idè kòta do xègogedo ha ts'iiwo. 2020 k'e DDMI kòta gots'o do nògha wekeè k'ahotaa gha gots'adi gha siagòdlà ilè hanikò COVID-19 tàdaa k'egwoo ts'ihaò wede adlà.

Diavik, Whaèhdoò Nàowoò k'e Dèhkw'ee gits'o hot'e, soòmbak'è eneèti nidè Whaèhdoò Nàowoò weta whelaa xè adle-a eyìi dakwelòò gidaànidè hot'e. 2020 k'e do wek'e dèhkw'ee eyìi gho elagiadì-le COVID-19 tàdaa ts'ihoò elègehdèe gha wets'àet'o t'à.

Satsòkwì t'à Asiıgòò K'èhots'ezoo & Deghàà Satsò Etle

Diavik eko nihts'i t'à satsò etłe di (4) gòhłi wet'à soòmbak'è gòroo weghàlageda eyits'o xoghàà eghàlagildèe doò deròò nihts'i t'à satsòetłee t'à eghàlageda. Nihts'i t'à satsoetłe t'à tłeet'oo t'à hot'ii nahk'e 4.7 lemiiyoò litres haàtło wede adlà eyits'o 2020 k'e nihts'i xàdeekw'e (CO2e) 13,000 tonnes haàtło rihda wede adlà. Nihts'i t'à satsòetłee wek'e ek'aàk'ò naitł'ii wek'e whela wet'à tits'aàdii wets'ò at'i-le eyits'o wet'à webeè ets'aetł'òo dek'ari det'o k'e at'i. Erii xè 139,278 litres tłe haatło weghàhoowoo sii nagiihtsii sii tłe t'à satsòetłee rii 2020 k'e wet'à hot'i gha. 2014 k'e wet'a eghàlada gots'o hazoò t'à 1.5 lemiiyoò litres tłe haatło weghàhoòwoo sii wet'à goyii edi gha wek'eik'o, idaà naezee nahk'e nezi hot'e.

2018 k'e Diavik dàanì Kwe xè eghàlagedaa eładįį agiįlà. Eghàlagedaa k'è kwe kimberlite gots'o soʻombakweè xàgewa, eyits'o kwe ewaàgwì whegoʻo k'e nałageehtł'i hanì-le-dè ewaà nahkw'à k'e nałageehtł'i. Eghàlagedaa k'è ewaà denahk'e nechà-le ts'ò nàgede įlè, hanìkò eneètį nidè wet'à eghàlageda ha dìi. Diavik ładįį agele wekwe satsoʻkwì t'à nàowogòò t'à weghàlada geèhdzà. Nezij at'j wegòt'oʻ t'à Diavik 2020 ghoò k'e jłaà dii hanì git'àat'j.

Diavik įłaà nàowogòò hagįįwǫ wet'à asii etłe dek'asį wet'àhot'į gha. Di si wexè, satsǫ̀etłee gots'ǫ edi nats'ihchii, ti t'à satsǫ̀etłee gots'ǫ kǫ̀ goyìi goòwi, LED ek'aàk'ǫǫ (wet'à dek'asi ek'aàkoṭł'ìi k'ehowi) wet'à kǫ̀ goyìi ek'aàk'ǫǫ dèk'ǫ, kǫ̀ gokw'ǫǫ̀ wedę agehsį eyits'ǫ kǫ̀ dats'ǫȯ wet'àhot'jj-le sii edii k'ets'edee įzhìi ats'ehsj.

2020 k'e DDMI wet'à asıı k'ek'òo wegòò nègiləo, wet'à asıı weghàhoòwoo k'ekò eyits'o wet'à weghosèts'ezee weghàhoòwoo weta tı while ayehəll boxàet'èekò nègiləo, wet'à weghosèts'ezee weghàhoòwoo lo xè dàtlo alhdàa sıı 90% ts'ò dek'aəl at'l. Asıı weghàhoòwoo yiı tı while sıı ledı-le t'à tıts'aàdıı yets'ò at'li-le.

Ek'èhots'eaàa eyits'o EMAB

2020 k'e Diavik nįhtł'è dį gidanizah. Do įłè goxè eghàladaa (PA) soʻombak'è gòʻoʻoʻo ghoʻ nàniwo eyits'oʻo dàani wek'e eghàladaa ghoʻ iith'è. Eyii hazoʻoʻ ghoʻ ahodii sii weghàladà eyits'oʻo wedaatoʻ adlà. 2019 k'e Dè Gòʻoʻoʻo xè Nàowodeè Hòliį Xo Taàt'eè wenįhtł'è hołèe sii Toyati Zaà 16 k'e Edzanèk'e gha K'àowodeè T'oʻwhedaa, Dè Gòʻoʻoʻo eyits'oʻo Asii Nagoehsee gha K'àowo nįhtł'è wegha pehkw'ii dek'eèhtł'è. K'àowo Toʻwhedaa wenįhtł'è gots'oʻo yiitl'èe sii weghàts'eda gha idè nįhtl'è (Appendix 1) k'e dek'eèhtl'è.

Dè Gòrqo Wexoedii gha Yatigoghàgeràa k'e Dèhkw'ee eyits'o Diavik elets'ò geetl'è, soòmba nats'iihtàa, Whaèhdoò Nàowoò, eyits'o Whaèhdoò Nàowoò k'e dèhkw'ee sii dè gòrqo wexoedii xàraa ghoò gedaa gho elexè gogedo.

?erehtł'is Hálį Ts'į Hanı Nedúwé

Diavik diamond mine tsamba k'é thera sí, Lac de Gras húlye Jaďízí redzagh Něn thera sí reyër East Island húlye nu thera sí reyër t'a thera rat'e, Beghúldesche ts'į yudázé ts'ěn tonona dechën hánitha húk'e thera. 2000 núltágh kú, Diavik solághe retk'éch'a dëne dédline ts'įráne xa k'áldé dálį sí xél chu yunághé ts'į níé ts'ën k'aldhër chu jaďizí redza nën ts'į níé ts'ěn k'aldhër xél t'at'ú ní hadi xa límashi hetts'į, that'in yati t'á Environmental Agreement húlye. redëri límashí sí Diavik tsamba k'é thetra ghár t'at'ú níé ts'édhir ch'á yatni xara sí bek'oréhtt'is, reyi yeghár reghálana xa. redëri límashí hálį sí reyi beghár redëri Environmental Monitoring Advisory Board (EMAB) húlye nuhút'agh, thëne ts'ěn t'así hatni xa; redëri Board sí t'at'ú rerehtt'is beghár reghálada xara sí hatni-u, tth'i ní ts'édhër ch'á t'at'ú beghálada xa sni sí reyi hát'e-u hára xa hatni rat'e. Diavik diamond mine tsamba k'é thetra, 2020 k'e beghálahdá sí, dų retk'édjadhel (18) gháy xa beghálada rat'e. A21 pipe húlye (tthe betagh tsamba hulį) 2018 núltagh k'e beghálada búnídhër-u, 2020 k'e ratú beghálada hára -u, A154 chu A418 níyághe reyi tth'i ralú beghálada hára.

?edëri perehti'is si, 2020 k'e t'at'ú Diavik ni hałni-u, t'at'ú ni hadı yeghálana si, peyi ghą t'e. ?edëri perehti'is si, EMAB húlye t'a perehti'is theła si (bets'į office thepą si peyër-u, tth'i computer yé t'alási perehti'is nelpį xadúwile bek'áni, peyër tth'i thela pat'e) peyër thela-u, hat'ele dé, Wek'èezhii Land and Water Board húlye peyër t'alási perehti'is nelpį xadúwile perehti'is thela si peyër tth'i thela pat'e.

2020 K'e T'at'ú Ní Badı Beghálahda Sí Gha Dënexél Hadı

Tsamba K'é T'a Ní Theza

2020 núltagh k'e tsamba k'é t'a ní k'e the a sí, de a jílya a ja 0.16 kilometers húlye háilya t'á. Diavik diamond mine Project húlye nút'ágh tthe, tsamba k'é nútágh t'á t'at'ú t'así ts'édhir xa hunidhën bek'aunehtágh hįlé sí a jeyi t'at'ú ní ts'į chu tu yághe ts'į t'así a jedų ane xa hunidhën sí Diavik tsamba k'é the a sí (11.41 square kilometers), a jeyi bek'á jó húle a t'e. Dų t'ailya ní bet'át'į sí, a jeyi a jází ní bet'át'į xaile hunidhën, hat'e húlí t'a tthedhir a jáldhir hála that'in yati t'á Waste Rock Storage Area South Country Rock Pile (WRSA-SCRP) húlye chu Waste Rock Storage North Country Rock Pile (WRSA-NCRP) húlye a jeyër t'a tsamba k'é dárétagh th'ágh dé ní a jela nanelye gha núdhër dé a jeyi de jáilya ní t'át') xa dé hane xa.

T'ánch'ay nanelye

2004 kú, Diavik tsamba k'é dárétą tł'ą dé t'at'ú t'ánchay dánanílye xa sí k'aunetagh húníłthër hįlé pat'e. Pedëri bek'aunetagh sí, 2017 peyi kú noot'é. Pedëri t'a hołé hunidhën xa beghálada sí: t'así huneshe bet'át'į t'á pedlát'u t'a paté nezų t'asi neshe-u, tth'i pełk'éch'a ts'ěn t'áncháy dáníye sí, pedlát'u t'a depáás nezų neye t'á-u, tth'i pedlát'u hápa dé t'áncháy depáás nezų neye peyi net'į. Pedëri bek'aunetagh sí, tsamba k'é thepa bedárétagh tł'ą dé, peyër náré t'at'ú

t'áncháy nanelye sí, redlát'u t'a deráás nezų dáníye t'á, reyi t'a net'į-u, t'a hurichá sí reyër nezų t'áncháy dánílye búret'į t'á. redëri beghálada sí, 2004 kú t'así neshe xa nílya hįlé sí, dų t'at'ú dáníye sí reyi tth'i net'į. 2018 núltágh k'e redëri ghą final report húlye nade rerehtł'is hálį-u, t'anódhër sí benánadé, Diavik bets'į Closure and Reclamation Plan (Version 4.1) húlye reyi t'a húlra sí, bexél ralye xa dé begha nánadé.

Ch'adı

Petthěn badi hápą sí, peyër náré petthěn dólį dé petthěn t'arát'į sí (tsamba k'é thepą t'á to peyër nár t'así peghálada t'á to petthěn t'arátį sí peyi badi) peyi xa badi. Yudázį ts'į Bathurst caribou húlye petthěn t'a ts'en dzérélt'i sí yudázį ts'į t'a ts'en dzérélt'i xa sni, hát'u dzérélt'i-u ghay k'e t'a ts'en dzérélt'i sí peyi bet'á Lac de Gras ts'į petthíze ts'en tó nazį ts'en tó dzérélt'i xa bek'oreją pat'e. Xayt'ás dé petthěn peyi tu thepa ts'į petthíze ts'en pat'į xa dásni hájaile 2018 núltágh k'e, tth'i petthěn bek'oth kál bek'e dáthela łą Lac de Gras ts'į nazį ts'en pat'į sayizį ts'en nalt'i ghą núdhër dé, 2011 ts'į hát'į pat'e. 2020 núltágh k'e dzeret'áy t'á petthěn hultagh sí, bedí húlí sát'ele t'á hályaile. Jadízí Pedzagh Něn Ts'į Níe Ts'en K'aldhër bechëlekui Environment and Natural Resources húlye ts'į Zone of Influence Technical Task Group húlye t'at'ú Diavik yunéth hapa dzeret'áy t'á t'at'ú petthěn hultágh héni, peyi xa nóréłpą pat'e. 2020 k'e tsamba k'é thepą ts'jpáne pjłágh huli petthěn thaidhër hulíle - u, pjłágh huli petthěn yuwé níjú hulíjle.

Nághaye-u, dleze-u tth'ı jischogh tth'ı zeyër tsamba k'é thezą nár búret'į. ?eyër nár ch'ądı́ het'į dé bek'úrilth'ıs zat'e, zeyı ghár t'anıkt'e k'éneth t'at'ı ch'ądı́ het'į si bek'óreją xa t'á, tth'ı zeyër tsamba k'é thezą kúé dáthela si, zeyı náré bet'ógh nile dé xa tth'ı badı. 2020 k'e tsamba k'é házą zeyër nár zıkághe zıyes t'ası́ hena heldél hát'ı thaıdhër húlı t'at'ú zaja sı́ bek'órejaıle. ?eyı beghathën zıkághe nághaye chu dleze ts'úday chu beskéne náke harelyú zedılya hıle. 2020 T'anchay Náth'ır Za núltagh k'e dleze ts'úday chu zıkághe beyas chú thabıhıldé, zeyër kúé dëne nádé yızı zeyı dleze ts'údáy zeyër nák'e k'énéth yıs dálgé hılé t'á dëne ba hunejër t'á halya zat'e. ?eyër tsamba k'é thezą beghálada t'aıle zıkághe zetthen zeya zajá t'á Environment and Natural Resources officer húlye, zejër k'élnı dëne thayııkther. Tsamba k'é háza zeyër benáré Jadızı́ ?edzagh Nën Ts'ıl Nié Ts'en K'aldher zeyı bexél chu, yuzáné tsamba k'é dáthela zeyı tth'ı bexél t'ası́ hadı háza zat'e. 2017 k'e dleze betth'ıghá nálts'ı-u, bets'ıl DNA húlye net'ı-u, zeyı beghár zeyer South Slave Geological Province húlye náré dleze nádé sı́ zeyı tsamba k'é theza t'á t'asájaıle bek'óreja (t'at'ú zats'edı dleze t'at'ú dániye sárat'ele-u dezánıkt'e zane).

T'anchay Neshe-u, Ts'ër Dzérédhı-u, tth'ı Nıłts'ı Ts'eji Dzérédhı T'at'e Si

Haluka hant'u, yath nálts'í-u, nalghį-u, bet'agh t'anílt'e ts'ër hulį net'į-u, t'at'ı ts'ër-u, tth'ı peyı ts'ër betagh t'at'ı náidisline hulį si peyı tth'ı net'į. Peyı beghąlthën ts'ër náltsı xa t'asi dáthela si, peyı beyé net'į-u, tsamba k'é thepą t'at'u ts'ër t'at'u dzérédhı-u, t'anilt'e ts'ër dzérédhı si peyı tth'ı hultágh-u badı. 2020 núltagh k'e kú, t'anilt'e ts'ër dzérédhı si yuyágh pajá 2019 núltágh k'e ts'į hultágh ghár xa-u. Tsamba k'é thepą ch'azį súghá niltha xa dé, ts'ër dzeredhı k'ápo pat'e-u hane xa sá hunıdhën pat'e. Yath k'e ts'ër nátl'ır si net'į ghár peyı Water License húlye tu t'á t'į xa perehtl'is betl'alchúth si, peyı t'anilt'e xa dúwile héts'edı peyı k'ápo pat'e-u, 2019 k'e t'anilt'e snı-u bek'uréhtl'is si, peyı tth'ı k'ápó pat'e. T'ánchay dánishe chu tthetsį dánishe chu peyı

bek'áúnetagh sí solágh (5) ghay hant'u net'į pat'e. 2016 k'e nade net'į pat'e-u, t'aniłt'e ts'ër bek'e nátł'ır hultágh sí yuyághe pajá pat'e.

2020 núltágh k'e kú harelyú t'á 80.3 límëlyó lígaló, that'in yatı t'á litres sni sı, hánílt'e gëslin, diesel húlye, bet'áát'í, tsamba k'e beghálada xa.

Tu chu Łue chu

2020 núltágh k'e, Diavik pedëri Aquatic Effects Monitoring Program (AEMP) húlye háłpą ghár tu yághe t'así dáníshe t'arát'e badi peyi pałú yeghálana-u, tth'i Surveillance Network Program (SNP) húlye peyi tth'i pałú yeghálana. Peyi AEMP beghár peghálada sí, płágh ghay hant'u Lac de Gras tu thepą sí, net'į pat'e hat'e húlí, płágh ghay k'e t'asízí net'į-u, peyër ts'į yunedhe ghay dé, pedú ts'ën net'į, peyi beghár tsamba k'é thepą sí bet'á Lac de Gras ts'édhir dé xa badi t'á. 2020 núltágh k'e tsamba k'é thepą ts'ën nidhíle (bets'ěn nedhíle-u, tth'i t'anís ts'ěn lát'e dáthela) chu netthá ts'į chú tu náłtsį bets'į chemistry (tu t'at'e sí) húlye net'į xa-u, tth'i that'in yati t'á nutrients sni peyi chu plankton (te yé ts'į t'así dánechílaze búret'įle dáníye – t'aníłt'e chu t'at'i chu) húlye peyi tth'i xa net'į – lue tth'i net'į. Pedëri AEMP húlye xa Traditional Knowledge (TK) Study húlye sí 2020 núltágh k'e hályaile: hat'e húlí 2018 núltágh k'e peyi AEMP TK Study húlye xa lue chu tu chu net'į-u t'a dëne ch'ání k'édórélyą deni t'arádi ghár xa-u, lue chu tu chu nezý-u sát'ele dádi, peyi pełéł t'a pat'e.

?eyër tsamba k'é the a ts'į súghánitha ts'ën (a t'así t'así t'así t'así t'o tth'i) a eyi nutrients húlye sí yudágh a já k'é búrét'į a eyi t'a a eyi tu the a Lac de Gras húlye sí beyé nutrients húlye yudágh ane a eyër tsamba k'é the a t'a a t'e hunidhën.

Ní túé bet'agh nutrient's húlye yudágh pát' chu ní nálk'eth peyi bet'á tu pedú pat' pat'e. Diavik peyi ní túé bet'ágh nutrients húlye Lac de Gras yétł' r k'áp pane xa yeghálana pat'e-u, ní nák'eth sí, peyi té badi-u, ní nálk'eth xa t'a t'át' sí peyi té yałni-u, tth' tu té nezų seyeriłthën-u beghálada háłpą pat'e.

Háyoríla Ts', Dëne Bexél Yatı/Dëne Ch'ání Ts', Haní

Diavik t'at'ú nié ts'édhir ch'a xa yałni chu yuneth haza tsamba k'é dárétį ghą núdhër dé, t'at'u zeyi xa ts'ën zeghálana si ghą háyorįla dëne náráde xél halni nélį. Diavik t'ą xél Participation Agreement (PA) húlye bets'į si zeyi xél zedëri t'at'ú súghá hunidhën k'e zeghálana-u, tth'i t'o hunidhën si, hát'u dëne xél zeghálana. 2020 núltágh k'e Diavik t'ó t'ą xél PA húlye bets'į si zeyi xél ní t'at'ú yeghálaihena sí ghą dëne xél halni hįlé si, zeyi tth'i zedëri zerehtł'is k'e bek'uréhtł'is zat'e.

2020 núltagh k'e Covid-19 húlye dekoth dáda nedhé t'á háyoríla náhídel-u, dëne tsamba k'é thera ts'ěn dzérídil zile -u beyághe yati t'á to that'ın yati t'á videoconference húlye zeyi zilt t'á dëne xél yailti hile. Zeyi hánódhër kú, Diavik háyoríla dëne xél zeghádálana sí xél zeghálaná zeyi háyoríla dëne nárádé t'at'ú burelkër-u t'at'ú súghá zeyi k'e zeghálodá hunidhën hát'u dëne xél zeghálaihina. Sats'án t'á-u, zerehtł'ís k'e dëneba táti-u tth'i beghathën zekk'éch'a ts'ěn dëne bexél zekk'éch'a t'así gha náti xa surelthí. T'olasi dëne zela nídél-u t'así gha nádáti zeyi hát'u dëne rélkër xa rezi húlí háyoríla dëne náráde t'asáráne xa rezile-u búréde xa rezile

t'á háújaile, Þeyi t'a deþááz bet'órépa t'á. Peyi beghatthen, Diavik tsamba k'é thelþa sí, háyoríla ts'i dëne Þeyër náílí rétdzágh, dëne Þeyër tsamba k'é t'at'ú háþa sí, deni té benágh t'á yeþi rélþi t'á. Harelyú dëne kós nálye xaþaile húlí, t'a kos náihedel sí, háyoríla nidel dé, t'a heþi gha dëne xél halni nidé yidhën þat'e. 2020 núltagh k'e DDMI húlye háyoríla ts'i þlágh dëne nághaye bek'é badi-u hultágh xa súlyá ni húlí þeyi Covid-19 t'á beghádaile, þeyër náts'edél haþa ní badaile.

Diavik pedëri TK Panel húlye si dëne peła déłtth'i-u, t'at'ú dëne ch'ání ts'į hani bet'át'į ghár tsamba k'é dárátį ghą núdhër dé peyi ghá beghálada xa peyi hát'u háłpą pat'e. 2019 núltágh k'e pedëri TK Panel húlye t'a k'e peghádálaihená sí, níyághe hágér sí, t'at'ú bedárélye xa peyi ghą náíhiłti.

T'así Góth Xél ?eghálana-u, Kún K'ápó Bet'áti

Diavik tsamba k'é theł pa si, peyër dį (4) satsán niłts'ı hełtsı nechá dáthela pat'e-u, dëne peyër peghádálena si peyi satsán kón hełtsı t'árát'į, harelyų́ ghay k'e. 2020 núltágh k'e pedëri satsán bet'át'į t'á harelyų́ t'á 4.7 limëlyó ligaló, that'in yatı t'á litres sni si, hániłt'e gëslin, diesel húlye dek'apó bet'át'į-u, 13,000 tonnes húlye hániłt'e gëslin belër (Co2e) hálįle. Peyi satsán dáthela bet'oth naratl'ir si, bek'e kón dék'ën nareltth'i dólį t'á chadi chu piyes chu yet'árádel pat'ele. Peyi beghąłthën 2020 núltágh k'e 139,278 ligaló hániłt'e tłesdoth bet'át'į hįlé si, náłtsį-u, waste oil boiler húlye thepa peyër bet'át'į. Peyi 2014 núltágh k'e nít'agh si ts'į harelyų́ t'á 1.5 limëlyó ligaló hániłt'e tłesdoth bet'át'į hįlé si peyër hurék'án t'á hadhël hale pat'e, peyi hát'u bet'át'į t'á tsamba k'é thepa ch'ás nalyéle.

2018 k'e Diavik t'at'u peyi tthe beghálada kúé, Process Plant húlye peyi t'at'u tthe beghálada sí pedu beghálada xa yílá. Peyi du satsán tthe, kimberlite rock húlye ts'į diamonds hálay-u, peyi tthe t'a beghádhër sí, hatł'és lat'e pat'į tó, thay lát'e pat'į. Peyi satsán pahtthe hatł'és lát'e puli pungą hełtsi, thay lát'e hanúnile-u, tsamba k'é dárétį ghą núdhër dé, peyi hatł'és lat'e sí bet'á peghálada búrenile xa t'e. Diavik peyi satsán kóth ríłdzágh puhdú pedú beghálada xa yílá; peyi hát'u palpi nezų k'e t'á 2020 núltágh k'e hát'u palpi xa yílá.

Diavik t'aníłt'e kún k'erełk'ą si peyi t'at'ú k'ápó payile xa peyi yek'áúnetagh pat'e. Peyi si bet'á kúé hunédhën-u bet'á kón dék'án-u, kúé dáthela yis hunédhël peyi ts'į harelyú háthël náltsí-u yuwé t'así xa yet'á t'į réłdzágh-u, tth'i yis bet'á húret'į kón dek'án si that'in yati t'á LED lights (háníłt'e kón delk'ěn pile) dólye t'at'į-u, kúé bet'ápat'įle si peďilye-u, t'a kúé halą bet'át'įle si, hathël yuyághe náildeth.

2020 núltagh k'e DDMI beyé t'así abek'urelką kóth nípą-u, ber hát'eth kúé yís that'ın yatı t'á kıtchen food waste dehydrator húlye nípą bet'á t'anít'e beghą shéch'elyi páldél k'ápó pane xa peyi t'á t'anít'e t'así k'urek'á sí yuyágh paja 90 percent t'á. Peyi dehydrated waste húlye sí hetsen pat'éle t'á ch'ádí yets'en pat'í xaile.

T'a Ghár ?eghálada Xa?a Hát'u ?eghálada chu EMAB chu

2020 núltágh k'e kú, harelyú t'á bets'į PA partners húlye dį k'éneth Diavik ts'ěn dárítł'is zeyi tsamba k'é thezą zeyi ghą tó zeyër t'at'u tsamba k'é beghálada zeyi ghą tó. Zeyi harelyú

yeghálaihená-u, not'e. 2019 ts'į Environmental Agreement húlye plágh ghay hant'u peyi ghą dënexél hadi perehtl'is halé sí, Jadízí Pedzagh Nën Ts'į Nié Ts'ën K'aldhër bechëlekui Environment and Natural Resources húlye xa k'aldhër helį sí Tadhe Yati Zá pełk'etadhel 2020 núltágh k'e, peyi perehtl'is sát'ele héni. Peyi k'aldhër 2019 ts'į Environmental Agreement Annual Report ghą dëne ts'ën heritl'is sí pedëri perehtl'is bexél helchúth pat'e Appendix A húlye peyër t'a helchúth.

Peyi Environmental Monitoring Advisory Board húlye chu Diavik chu pełts'éheretł'is panat'į, t'así pełk'éch'a ghą, tsamba ghą tó, Dëne Ch'áni ghár peghálada tó tth'i TK Panel húlye peyi tth'i ghạ tó, t'at'ú ní badi xa suridhën tó, peyi ghạ pełts'ën huretł'is.

Atangoyat Naetomik Okaohet

Diavik-mi pinikotikhanik oyagaktakvik inikaktok Kivalikheani Kigiktami Lac de Gras-mi, Kanataop Nonateagani, kanitoani 3-hanat kilamitamik tonungata kivalikheani kavamakakveop, Yalonaemi. Diavik-kot saenikhihimayot Avatilikinikot Agikatigegunmik (Agikatigegut) talimali Nonakakaktut timeoyut kanatamilo okeoktaktomilo kavamanik 2000-mi. Agikatigegut okaktok Diavik-kot kanogileogohikhaenik monagiyagani avataoyok oyagakheoktilogit. Pikaktoklo Avataoyomik Monaginigagut Ihomakhakheoktit Katimayit (EMAB) katimayigukhimayut ilagiyani Agikatigegutip; Katimayit inuknit monagiyit maligoagakhani havaohikmi atolikniganiklo Agikatigegut. Diavik-mi pinikotikhanik oyagaktakvik 18-giyani ukeogani aolanikaktok 2020-mi. Oyataktut A21-mi oyagaktakvikhami (oyagaktakhanik) atoklikhimayok 2018-mi atokhimaktoklo 2020-mi nonaplo iloani oyagaktakvik atokhimaktok A154-mi A415-milo oyagaktakvikhani. Ona onikpak okaohikaktok kanogiliniginik Diavik-mi avataoyomik monaginigagut monagiyotiniklo havanik atoktilogo 2020-mi ukeok. Ayikotaet onipkap titigaktaonigit naniyaolaktut EMAB-kot naonaepkotikakveani (titigakveani, kagitaoyamilunet makpigakakveani) Wek'èezhìi-kolunet Nonalikiyit Imalikiyilo Katimayit inuknit naonaepkotikakveani.

Naetomik Okaohik 2020-mi Avatilikinikot Holiyotaoyotinik

Oyagaktakvikmi Inigiya 2020-mi, Oyagaktakvikmi inigiya agikligeaktok 0.16-mik kikagiknigini kilamitanik. Ataotimut aheonigit nonami imakmilo nonagiyaoyut ublomimut Diavik-kot oyagakheoknikot holiyotaenit (11.41-mik kikagiknigini kilamitanik) mikitkiyak nalaotaktaoniginit hivolikmi Avataoyomik Ilitokhakniganit talvani Diavik-kot Pinikotikhanik Oyagaktakvikmi Havami. Taya inigiyaoyok nahogiyaoyok aginikhaoliknigani taya aolanikhaeni, ovaneogitok Ikagogiyaoyoni Oyagaktanik Tutkoktigivikmi Hivogani Nonami Katitigiveoyomi (WRSA-SCRP) Ikagogoyaoyoniklo Oyagaktanik Tutkoktigivikmi Tonungani Nonami Katitigiveoyomi (WRSA-NCRP) inigiyaoyoni mikiyomik agikligeakneagonakhiyut nona kiklimaktiktaolikat havaohikni.

Naotiktoevaligotit

2004-mi, Diavik-kot ilitokhaehimaliktut kanok ikayogeagani naoteak naovageagani oyagaktakvik umikpat. Ona ilitokhaot inikhimayok 2017-mi. Iniktigakhat nalonaegotikhat: kanok naotiktoeyagani naoyokhanoanit, kanok ihoakniginik alatket naotiktoeyotit piyotikakniginik naoteat naonigini kitolo kanoginigit ihoakhivaligotaoyut naovaleanikhaeni hivonikhami. Ilitokhaot ihivgeokhiyok nakukmaga atogeami alatkenik naotiktoeyotinik ilagoenagini haneani oyagaktakveop umiknigani, ona aolanikateakhimakmat aheni agiyoni inigiyaoyoni. Onalo havak ilakaktok amigaetkiyanik amigiyotinik ilitokhaevikni nonani 2004-mit, naonaegeagani kanogilivaleaniginik ukeoni atoktoni. Kigolikmik onipkak inikhimayok 2018-mi kanogiliniginik ihomagiyaoyut ilagiyanik kigolikmik titigaknigani Diavikkot Umiknigani Kiklimaktikniganilo Upalogaeyaotimi (Titigaohik 4.1-mi).

Umayot

Toktunik amigiyotit ihivgeokhiyotaohimaktut kanogileokniginik (taotukhogit toktut ilitokhageagani kanogileokniginik oyagaktakvikmi ahenilo huliveoyoni) toktukaktilogo talvani ilitokhakveoyumi

nonami. Aolanigit ii-mi kanogileoknigini ukeoktaktoani Kigaop toktut atakniginik ikayutaoyut ihomagiyaoniganik ukeoktaktomut aolanigit oalikheanut kivalikheanulo Lac de Gras-mi piyotikaktok inigiyanik ukeomi hagovigiyaini. Naonaeyaktaokpat nalaotakniganik toktut nuneakniginik kivalikheanut tatip ukeakhami, kanogilinigit 2018-mi alagayut nalaotaktaenit amigaetkiyalo kogohiktaotilgit toktut nutpaleahimayut oalikheanut tatip haneani Lac de Gras-mi hivogani ataknigini 2011-mit. Toktunik tikmeakut naonaeyaotit atogeakagitut inikhimagitotiklunet 2020-mi. Diavik-kot otakiyut atolikoyaoyonik togakvigitkoyaeniklo Nonamik Aktoknigani Notaonikhanik Havakhitaohimayut Ilagenit Havakveoyomit Avatilikiyinit Nonameotaniklo Ihoakotilikiyinit Kavamani Nonateami maligoagakhanik hivonikhami toktunik tikmeakut naonaeyaotini. Pikagitok toktunik tokohimayonik piyotikaktonik oyagaktakvikmit 2020-mi pikagitonilo amihoakyoet holiniginik.

oyagaktakvikmi kilgavelo talvaneginaktut nonami. naonaeyaktaoyut kavektokhogit takoyaoniginik umayut iglukpakakvikmi, ilagiyalo atokmaga okoa kitoniklika oyagaktakvikm iglukpaknik ivavigiyaoniginik uvlokakveoyoniklo. Ataohikmik nikaenaktoktomik tikmeamik tokoyokakhimayok oyagaktakvikmi 2020-mi, tokoyotigiyanik nalonaekhimagitok. Ataohiklo kalvik akhaklo aknaluk malguklo peagaoyuk ahinut nutaohimayut. September-mi 2020-mi akhak aknaluk peakalo ihoaktomik tokotaohimayuk ona aknaluk itikhimakmat iglugiyaoloaktomut malgoekhoni anigotaonahokuknakhikmat havaktonit. Ataohik toktu anikhimayok piyotikagitomik Diavik-mi oyagaktakvikmi huliyotinit kigoanilo ihoaktomik piyotaoyomi tokotaohimayok Avatilikiyit Nonameotalikiyinilo atangoyanit. Nonami amigiyotinik havat atokhimayolo ikayoktikakhotik Kavamanik Nonateami ahenilo oyagaktakvikni. Kaganoak akhaet heaginik nikheagotinik DNA-git ilitokhageagani atokhimayok atoktilogo 2017-mi okeok kanogilinigilo nalonaegotaoyut pikaginiganik ihoetomik aktokniginik nonami amigaenigini akhaet Slave-mi Nonagiyaoyomi (ila akhaet amigaenigit aolaenaktut amigaekpaleavlotiklo) piyotaoniganik Diavik-kot oyagaktakveanit.

Naoteak, Poyoet Hilavlo Halomaniga

Apotinik ilitokhagakhat piyaohimayot upingagagat aoktoktaovlotik ilitokhageagani kanogalok heogakakniginik apotip kanogituniginiklo agitilaganiklo halomaelgut heokami. Heogavaloelo katitiktaoyut katitigotikhani nalonaeyaktaovlotiklo kanogileogotikakniginik agitilagini homeniginilo heogavaloet oyagaktakvikmit. Atoktilogo 2020 ukeok, agitilaga heogavaloet tamaenivyak mikitkiyaoyok 2019-mit. Nahogiyaonigani, ikitkiyaoyut heogavaloet takoyaoyut inigiyaoyoni ahikpani oyagaktakveop. Kanogalok halomaelgokakniganik heogakaktonik apotinit aolaenaktok atpani Imakmik Atogeagani Laeseoyomi pikaknikhaeni amigaeniginilo mikitkiyaoyok naonaeyaktaohimayonit 2019-mi. Aolalimagitut Naotiktoevet toktulo nikaenik amigoyotimi nalonaeyaktaovaktut natkagata talimat ukeot. Kigolikmi havagiyaohimayut 2016-mi naonaegotaoyulo mikitkiyanik pikakniginik heogaknik naoteani. 2020-mi, ataotimut 80.3-milean letanik okhokyoanik atoktaohimayok aolanigani oyagaktakvikmi inigiyaoyomi.

Imak Ikaloelo

Diavik-kot atokhimaktut Imakmik Aktokniganik Amigiyotimik Havamik (AEMP) iglukpakakvikmilo Taotoenakniganik Havaohikmik (SNP) amigiyotinik 2020-mi. AEMP-mi ilitokhaotit alanik ilagiyaenik

tatit alatkeni ukeoni naonaeyageagani aktoknigilaktaenik Lac de Gras-mik oyagaktakvikmit huliyotinit. Kanoginigit ilitokhaktakhat piyaohimayut kanitoanit oyagaktakveop (haneani akunganilo inigiyaoyonit) ogahiktoanilo oyagaktakveop (ogahiktomi havakveoyonit) 2020-mi ilakaktut imakmi honakakniginik (halomaniginik) aolagigotaoyoniklo, umayovalokniklo (mikiyonoet naoteat umayolo imakmi – agitilagit kanogituniginiklo), ikaloelo. Igilgat Kaoyimayaenik (TK) ilitokhaotinik AEMP-mi atokhimagitut 2020-mi; kiheani, kanogilinigit tamakni ikaloknik ihivgeokhiyotini imakmiklo ilitokhaotini 2018-mi AEMP-mi TK-nik Ilitokhaonmi iii-mi nalonaegotiyut okoa naonaeyaotini ilitokhaotit ikayoktoekmata taotoktaoyonik TK-mik tigomeaktinit ona taya kanoginiginik ikaloet imaoyulo Lac de Gras-mi nakuniganik.

Amigaektut katitpaleanigit naovaligotikhat heamayakpaleayut alatkeni ugahiknigini Oyagaktakvikmit (piyotikaktomik alatkeknignit ukeoplo honaoniganit) nalonaegotiyok ona Oyagaktakvik amigaektitivaleakmat naovaligotikhanik Lac de Gras-mi.

Alagogotit tahikmi piyotaoloaktut amigaekniginit naovaligotikhat nonap iloanit imaknit kagaktitaotinilo. Diavik-kot mikhiliginahoakpaktut agitilaganik naovaligotikhat tikitpaktonik Lac de Gras-mik atokhotik kagaktitaotini monagiyotinik, kayagivlotik tikoaktaoniginik kagaktitaotit hanahimayut imakniklo monagiyotinit halomakhiyotinilo.

Nonagiyaoyok Upipkakniganik/Igilralo Kaoyimayaenik

Diavik-kot atogomaenaktut atoktakhanik okaohikageagani kanogiliniginik avataoyomi amigiyotinik umikpalo upalogaeyaotimi havaohikmik nonagiyaoyomi ilaoyunut. Diavik-kot havakatikaktok atuni Ilaonigini Agikatigegotaoyomi (PA) timeoyomik nalonaeyageagani ihoaktomik piyotikhamik honaolikalo havaohigiyagani ukoa huliveoyut. Naetomik okaohik Diavik-kot upiyotaenik avataoyomik PA-mi nonagiyaoyomi timeoyolo atoktilogo 2020-mi ukeok pipkagaoyok uvani Onipkami.

2020-mi nonagiyaoyoi takoyotivlotiklo upipkaeyotit aktoktaohimakmata Kalakyoaknik-19-mit amigaenikhalo upipkaeyotit inikhimayut hivayaotikut kagitaoyakulo katimayotinit. Diavik-kot havakatikakhimayut nunagiyaoyomi ikayoktinik ukoa upipkaeyotit ihoateageagani ihageagiyaenik nonagiyaoyup talvani ukeomi. Atoknigit notaonikhat, nuptigitaoyut ahelo havaoheoyut ihoakhaktaohimayut atokhimageagani upipkaeyut. Takotilotik upipkaeyamikni atogomayaogaloaktilogo kitomilika ukeomi, ihomagiyaoniga anigitagani, aneagitagani inuhikateageaganilo inoet nonagiyaoyoklo atoktaolgagomayaoyok. Diavik-kot uktokpaktolo kaepkageagani nonagiyaoyomi ilaoyut oyagaktakvikmut takoyagani oyagaktakvik takoyaganilo haneani avataoyok nanminik ekmiknut. Ayoknagaloaktilogo kaepkageagani tamaenik iglokpakakvikmut, nahogiyaoyok okoa ilaohimayut okageagani atokhimayamiknik alanik inoknut agilgagiyamikni nonagiyaoyomi. 2020-mi, DDMI-kot upalogaektut nonagiyaoyomi inokmik ikayoktikageagani kalviknik tuvyakhiyagani naonaeyaonmi, kiheani piyotikakniganik KALAKYOAKNIK-19-mit aneagotikyoakmi atokoyaogitut talvuna, polaknik atogoektaohimayok.

Diavik-kot pikaktut Igilgat Kaoyimayaoyonik (TK) Nalaktitiyinik ihomagiyakakloaktonik ihomagiyagani ilaleotiyaganilo Igilgat Kaoyimayaenik oyagaktakvik umiktiknigani upalogaeyaotimi. 2020-mi, TK-nik Nalaktitiyinik katihimaginmata KALAKYOANIK-19-mit atogeakagitonik.

Notaonikhalikiyotit Aolayotiniklo Ihoakniginik

Pikaktok hitamanik anogitutinik algoyaktogotaoyonik Diavik-mi oyagaktakvikmi, havaktilo atoteaknahoakpaktolo ihoakniginit ukoa anogitutit atoktilogo ukeok. Anagotutit atogotaogitut 4.7-mileani letanik okhokyoanik atoktaoyonik kanitoanilo 13-taosit tons-nik poyuknik (CO2e) 2020-mi. Anogitutit kavligaktaktonik kolikaktut kanikliyaogitagani umayonit ikiklivaligeaganilo tikmeanoet aktokniginik ukoa kaevitut agutaet. Ilagiyanilo, kanitoani 139-taosit 278-letanik ikagonik okhoknik katitigaoyut atoktaoyagani ikagonik okhokyoanik ikolativikmi atoktilogo 2020-mi ukeok. Atoliktaokmat 2014-mi, ataotimut avatkomayut 1.5-milean letanik ikagonik okhokyoanik ikolatiyaohimayut unakotigiyagani, aolaktihimaetomik talvanga inigiyaoyumit.

2018-mi, Diavik-kot alagoktitihimayut kanok Oyakikivik aolanikakmaga. Oyakikivik ahivaevaktok pinikotikhanik oyagaktanit, oyagaklo paneomayomik heogaloagukpaktuq kinipayomilunet heogaleamik. Oyakikivik hanavaktugaloak amigaetkiyanik heogaleanik, kiheani heogaleat ayoknatkiyaokmata kanogileogeami umiktilikat. Diavik-kot ilitokhaeyut nutanik pigeagotinik alagogeaktinagu una; ihoaktonik kanogiliniginik atogeakaktut.

Diavik-kot atokhmaginaktut umiga havaohikmik atoktilogo 2020-mi ukeok. Diavik-kot kinikhimaginaktut notanik kanogileogotikhanik mikhivaligeagani aolayotit atoktaoyut. Ona ilakaktok unakniganik utiktivageagani algoyaktutinit ignikotitutinit unakotitutinilo iglukpakni, atokniginik LED-nik (mikitkiyanik algoyaktutinik atoktut) koliknik iglukpakni, ahivaktikhogit inokagitut iglukpaet, ignikhivakhogilo unakotit iglukpakni atoktaokatagitoni.

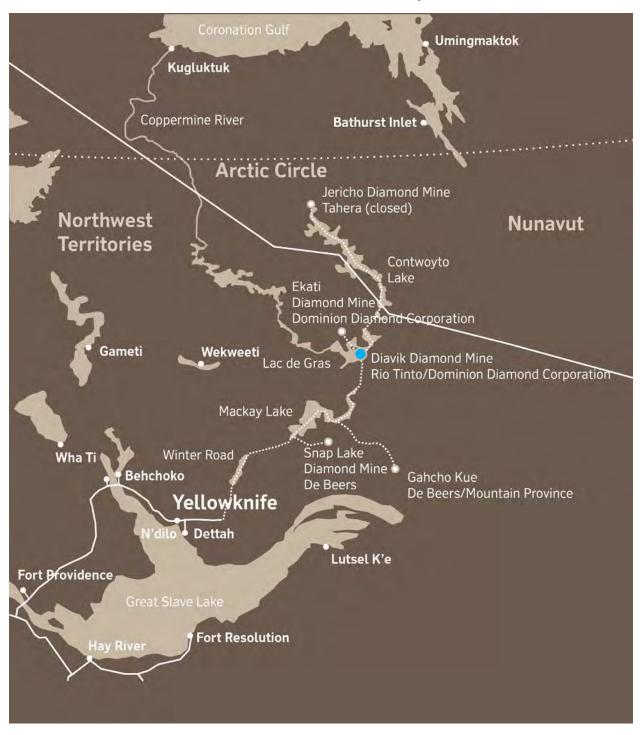
2020-mi, DDMI-kot ileogaehimayut notamik ihoatkiyamik ikolatiyotimik ikolatiyagani ikagut ileogaevlotiklo kukeovikmit nikivaloknik ikagonik panikhevikmik ukiklivaligeagani mikhivaligeaganilo kukeovikmit ikagut ikulatiyaovaktut ima 90%-mik. Panikhimayut ikagut naemanagitut taemaenigani umayonik kaeyotaovagitok.

Maligoateaknik EMAB-kolo

Diavik-kot pihimayut hitamanik inmiknut tohaktiyotinik titikaniklunet okaohikaktonik ihomalutinik PAni ikayoktigenit oyagakheokvikmi aolaniganiklunet atoktilogo 2020-mi ukeok. Tamaeta piyotaoyut
kigoani monagiyaoyut umikhotiklo. 2019-mi Avatilikinikut Agikatigegutmi Aepagotoagagat Unipkak
namagiyaoginaktok Tukleanit Ministaoyup Kavamani Nonateamit, Avatilikiyit Nonameotalikiyinilo
Havakveoyomit December 16-mi 2020-mi. Ayikota Tukleop Ministaoyomit titikiyota 2019-mi
Avatilikinikut Agikatigegotaoyok Aepagotoagagat Unipkamik pipkagaoyok Naonaeyaevikmi I-mi.

Avataoyomik Monaginigagut Ihomakhakheoktit Katimayit Diavik-kolo avanmut titikiyotikaktut piyotikaktonik okaoheoyonik ukeomi maniknik atoktukhanik, Igilgat Kaoyimayaenik TK-niklo Nalaktitiyinik, ihivgeokniginiklo alatket avatilikinikut amigiyotaoyonik havanik.

Diavik Diamond Mine Location Map



List of Acronyms (abbreviations found in this report)

AEMP Aquatic Effects Monitoring Program

ARD Acid Rock Drainage

BOD Biological Oxygen Demand

CCME Canadian Council of Ministers of the Environment

CSR Comprehensive Study Report – Diavik Diamonds Project

DDMI Diavik Diamond Mines Inc.

EA Environmental Assessment

EAAR Environmental Agreement Annual Report
EMAB Environmental Monitoring Advisory Board

EMS Environmental Management System
ENR Environment and Natural Resources

GNWT Government of the Northwest Territories

ICRP Interim Closure and Reclamation Plan

LDG Lac de Gras

MVLWB Mackenzie Valley Land and Water Board

NIWTP North Inlet Water Treatment Plant

NTU Nephelometric Turbidity Units (measurement of water turbidity)

PA Participation Agreement

PK/PKC Processed Kimberlite/ Processed Kimberlite Containment

PVP Permanent Vegetation Plot

QA/QC Quality Assurance/Quality Control
SNP Surveillance Network Program
SOP Standard Operating Procedure

TEK/TK/IQ Traditional Ecological Knowledge/Traditional Knowledge/Inuit Qaujimajatuqangit

TP Total Phosphorous

TSP Total Suspended Particulates

TSS Total Suspended Solids

WLWB Wek'èezhìi Land and Water Board

WMMP Wildlife Monitoring and Management Plan

WOE Weight of Evidence

WRSA-NCRP Waste Rock Storage Area - North Country Rockpile WRSA-SCRP Waste Rock Storage Area - South Country Rockpile

WTA Waste Transfer Area

ZOI

Definitions

Abundance – a count or measurement of the amount of any one thing.

Action Level - a level of environmental change which, if measured in an aquatic effects monitoring program, results in a management action well before effects that could be harmful to the lake can happen.

Adaptive Management - a systematic way of learning from monitoring results or management actions with the intent to improve operating or management practices.

Benthic Invertebrates – small bugs without a backbone that live in the sediments on the bottom of a lake or river; can include flies, worms, clams, etc.

Chlorophyll *a* - found in plants and traps light energy from the sun.

Density – total amount of a given substance within a defined area.

Deposition Rate – the speed at which something settles on to a surface, e.g. how slow/fast a piece of dirt falls through water to settle on the bottom of a lake.

Distribution – how any one thing may be spread out over an area.

Effluent – water from the sewage or water treatment plant that is discharged from the plant after cleaning/treatment.

Enrichment – addition of an ingredient that improves quality; if too much is added, it may then start to reduce quality.

Environmental Assessment – process to review potential environmental impacts of a project that is being considered for development and decide if the project can be developed.

Eutrophication – water bodies like a lake receive a lot of nutrients and then start to grow a lot of plants within the water.

Habitat Compensation – replacement of natural habitat lost during construction of the mine; done using human-made features to improve areas of natural habitat.

High-level Effects – change noticed between different areas that may start to be higher than an agreed-upon standard.

Indicator – information used to try and understand what is happening in the environment.

Interim Closure & Reclamation Plan – a document that outlines ways to close a mine, including what needs to be done with water, land and wildlife. 'Interim' means that it is less detailed than a final plan, as there are still questions to answer before the final design or plan can be done.

Low-level Effect – early-warning level where little change is detected.

mg/dm²/y – milligrams per decimeter squared per year, the amount of dust deposited in a given area each year.

Mitigation Measures – things that are done to control or prevent a risk or hazard from happening.

Moderate Effect – some change noticed between different areas that may start to be higher than an agreed-upon standard.

Monitoring – a way to check on performance and compare it against an expected result, e.g. is anything changing.

Parameters – chemical and physical signs that can be used to determine water or soil quality.

Plume – an area in air, water or soil that is affected from a nearby source, e.g. a plume of smoke around an erupting volcano.

Prediction – an educated guess of what will happen in the future, can be based on existing knowledge or experience where possible.

Progressive Reclamation – starting to repair certain areas of land damage by mining activity while the rest of the mine is still operating; focus is on areas where mining activities are complete.

Research – a structured way to test questions on unknown features of the environment, e.g. reasons why a change may be happening.

Risk Assessment – a way to identify possible harmful effects by looking at how harmful the effect could be and how often it could occur. After risks have been identified, management actions are defined.

Sediment Chemistry – the mineral content of dirt particles that sit on the bottom of the lake.

Seepage – a release of water or other liquid material that flows through or out of a containment area.

Total Suspended Particulates - small particles in the air that measure 100 micrometers in size (which is slightly larger in size than the diameter of a human hair at 75 micrometers).

Trophic Status – a measure of lake productivity based on how many plants are in the lake.

Water Quality – an overall characterization of the chemical (nutrients or metals), physical (temperature) and biological (algae) features of water in a lake or river.

Weight-of-Evidence (WOE) – an estimate of the strength (weight) of proof (evidence) that is provided by jointly considering the results from each type of sample (e.g. water quality) throughout a season or across multiple years, to determine the overall effect of mine operations on Lac de Gras.

Zone of Influence (ZOI) – area of reduced wildlife occupancy as a result of mining activities.

Introduction

Diavik and the Environmental Agreement

The Diavik diamond mine is located on the East Island of Lac de Gras, in Canada's Northwest Territories, approximately 300 kilometers northeast of the capital city, Yellowknife. The lake is roughly 60 kilometers long and drains into the Coppermine River, which flows north to the Arctic Ocean. Diavik Diamond Mines (2012) Inc. (DDMI or Diavik) undertook an Environmental Assessment that started in 1998 through the Canadian Environmental Assessment Agency. The mine has been operating since 2003, and protecting the environment around the mine continues to be important.

Diavik signed an Environmental Agreement (the Agreement) with five (5) Indigenous organizations and the federal and territorial governments in 2000. The Agreement states what Diavik is to do to protect the environment while operating and closing the mine.

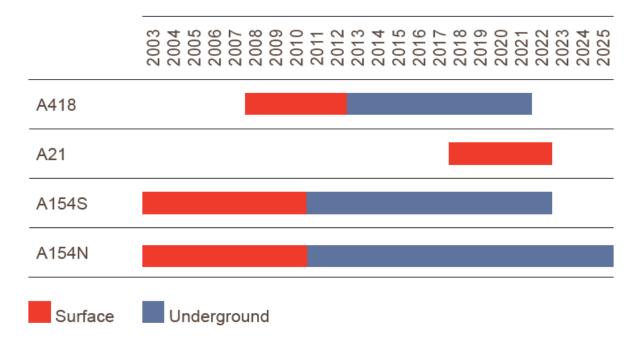
The Environmental Monitoring Advisory Board (EMAB) was established under Article IV of the Agreement as a public watchdog of the regulatory process and the implementation of the Agreement.

This report summarizes the results of Diavik's environmental monitoring and management programs during 2020. Complete copies of the numerous reports that Diavik submits each year can be found in the EMAB library (at their office, or <u>on-line library</u>) or the Wek'èezhii Land and Water Board <u>public registry</u>.

Operational Plans

The Diavik diamond mine was in its eighteenth year of operations during 2020. Underground mining from both the A154 and A418 pipes occurred in 2020 and will continue into 2021. Construction of a third dike to support open pit mining of the A21 kimberlite pipe began in 2015 and was finished in 2018 with operation of the A21 mine also starting in 2018. The A21 open pit mine continued to operate during 2020. The figure below shows a timeline of Diavik's mine plan, which shows mining activities planned for the next several years and closure planned around 2025.

Mine life



^{*}If the A21 Below Pit Project proposal is approved to proceed, mining of the A21 kimberlite pipe may extend to 2025.



Figure 1 Diavik Diamond Mine labelled site satellite photo.

1. Environmental Agreement Annual Reporting Commitments

Section 12.1 of the Environmental Agreement (the Agreement) outlines the content to be reported annually to the Parties, the Government of Nunavut, and the Environmental Monitoring Advisory Board on June 30th (submission date revised from March 31st in 2003), as outlined in Table 1.

Table 1: Summary of the Agreement Commitments in Relation to the Environmental Agreement Annual Report (EAAR)

The Agreement Commitment	Plain Language Interpretation (from EMAB)	Report Section
Comprehensive summary of all supporting information, data and results from the Environmental Monitoring Programs and all studies and research	A full summary of all supporting information, data and results from the Environmental Monitoring Programs, plus all studies and research related to these	2, 3
Rolling summary and analysis of environmental effects data over the life of the Project; compare results to predictions in environmental assessment and the Comprehensive Study Report – Diavik Diamonds Project (CSR), and illustrate any trends	A summary that adds in data of each year and an analysis of environmental effects data over the life of the Project - to show patterns over the years	3
Comprehensive summary of all compliance reports required by the Regulatory Instruments	A full summary of all reports on how Diavik has followed all rules and regulations in the Regulatory Instruments	6
Comprehensive summary of operational activities during the preceding year	A full summary of mining activities during the year up to the annual report	6
Actions taken or planned to address effects or compliance problems	The ways Diavik is fixing any environmental effects or problems following rules and regulations	6
Operational activities for the next year	A summary of mining activities for the next year	6
Lists and abstracts of all Environmental Plans and Programs	Lists and summaries of all Environmental Plans and Programs	2
Verification of accuracy of environmental assessments	A check that environmental assessments are correct	3
Determination of effectiveness of mitigation measures	A report on how well steps to lessen effects are working	Appendix II
Comprehensive summary of all adaptive management measures taken	A full summary of all adaptive management steps taken	Appendix II

The Agreement Commitment	Plain Language Interpretation (from EMAB)	Report Section
Comprehensive summary of public concerns and responses to public concerns	A full summary of public concerns and responses to public concerns	4
Comprehensive summary of the new technologies investigated	A full summary of the new technologies Diavik has looked into	5
Minister's comments, including any Minister's Report, on the previous Annual Report	The Minister's comments on the Annual Report from the year before, including any Minister's Report	Appendix I
Plain language executive summary and translations into Dogrib/Tłįchǫ, Chipewyan, and Inuinnaqtun using appropriate media	Plain English executive summary translated into Dogrib/Tłįchǫ, Chipewyan, and Inuinnaqtun	ii-xv

2. Environmental Programs and Plans

This section outlines the various environmental plans and programs that Diavik follows. For each plan/program, a brief outline is provided that explains why the program is being done and/or how it is completed. Many of these plans and programs are the same from one year to the next. As stated in Diavik's Water Licence (W2015L2-0001), plans that have not changed do not require updates; those that have been updated and submitted for regulatory approval during 2020 are identified in Table 2 (the table also includes commentary on plan updates as of May 2021). Additionally, Appendix II contains a list of mitigation measures and adaptive management actions that have been implemented during mine operations.

Management & Operations Plans

Management and operations plans are site-specific documents that identify potential environmental issues and outline actions to minimize possible impacts that could result from mining activities. They are reviewed by DDMI each year and updated as required (i.e. if something changes). Table 2 lists the management and operations plans required under DDMI's water Licence, some of which are also linked to Diavik's land leases and Land Use Permits and summarizes the purpose of the plans and identifies which plans were updated for 2020.

Table 2: Management & Operations Plans for the Diavik Mine*

Plan & Version Number	Purpose	Updated in 2020 (Y/N)	Updates/ Comments
Ammonia Management Plan (AMP), v7	To assist in achieving the lowest practical amount of ammonia from explosives that would enter the mine water and waste water streams. The plan details how ammonia management performance is evaluated and includes details of ammonia management techniques.	Yes	WLWB approved updates in March 2020 to remove references to the concentrated sulphuric acid dosing system, which is to be decommissioned/removed from the North Inlet Water Treatment Plant.
Waste Rock Management Plan (WRMP) v10.1	Rock types that surround the kimberlite may have minerals in them that can cause water to become acidic when it runs over the rock. The plan describes how DDMI identifies, separates, and stores the rock to reduce acid runoff.	Yes	WLWB approved updates (WRMP V9) in July 2019 regarding changes to ore stockpiling and changes to verification procedures for A21 waste rock. WLWB approved updates (WRMP V10) in May 2020 to address previous Board directives, changes to sulphur testing procedures for A21 waste rock, and changes to ore stockpiling locations.

Plan & Version Number	Purpose	Updated in 2020 (Y/N)	Updates/ Comments
Closure & Reclamation Plan (CRP) v4.1	Outline closure goals (overall vision for what Diavik would like to achieve), objectives (steps the organization needs to take to achieve the goals – specific and measurable) and criteria (a standard against which success is measured) and includes engineering designs and research programs for closure of all the major components of the mine. Because it is a plan that evolves over time, it does not yet include final closure designs or details on specific after-closure monitoring programs.	Yes	- Version 4.1 submitted in Dec 2019 to WLWB. Approval of Version 4.1 is pending.
Hazardous Materials Management Plan (HMMP), v19	Describe procedures for the safe and efficient transport, storage, handling and use of chemicals for mining. Prevention, detection, containment, response, and mitigation are the key elements in the management of hazardous materials. The plan also describes how hazardous materials will be removed from site during closure.	No (last WLWB approval in 2016)	N/A
Contingency Plan (CP, used to be called the Operational Phase Contingency Plan), v22	Describe response procedures for any accidental release (spill) of hazardous or toxic substances, as well as procedures for water management. The CP outlines the responsibilities of key personnel and gives guidelines for minimizing impacts to the environment, including contingencies for the underground mine.	No (last WLWB- approved update in 2017)	Requires approval by GNWT Minister of Lands once WLWB approval received.
Water Management Plan, v15	Describe how water around the site is moved, treated, monitored and controlled. Also includes a 'water balance', which gives Diavik an idea of the amount and location of water on site at any given time, so that plans can be made for handling and treating water.	Yes	WLWB approved updates in March 2020 in support of decommissioning and removing the acid dosing system from the North Inlet Water Treatment Plant.

Plan & Version Number	Purpose	Updated in 2020 (Y/N)	Updates/ Comments
Waste Management Plan, V3 (includes Incinerator v3, Hydrocarbon Impacted Materials V3, Solid Waste & Landfill v3, Dust Management V3)	Identify the types of waste generated on site and outline methods for the minimization, collection, storage, transportation and disposal of wastes in a safe, efficient and environmentally compliant manner. Characterizes and segregates waste streams according to their on- and off-site disposal requirements.	Yes	Updated to reflect DDMI's intention to disposal of incinerator ash offsite at a registered third-party waste management facility and to replace an old batch waste incinerator unit with a new and more efficient unit. The submission also included minor administration changes. The WLWB approved Version 3 on August 21, 2020.
A21 Construction Environmental Management Plan, v5.2	Outlines how Diavik plans to reduce environmental effects from A21 dike construction activities. Includes a description of on-land and in-lake construction activities, including dewatering. Environmental management controls and monitoring requirements are also described.	No (last WLWB- approval in 2017)	N/A
Engagement Plan, v3.0	Outlines the outreach and engagement process with communities in relation to the Diavik Mine Project under Water Licence W2015L2-0001 and in line with the WLWB's Engagement Guidelines for Applicants and Holders of Land Use Permits and Water Licences.	Yes	DDMI Submitted Engagement Plan Version 3.1 in July 2020 that reflected WLWB Directives from its May 2020 review and approval of Version 3 of the Plan.
Processed Kimberlite Containment Facility (PKCF) Operations Plan, v5.1	Outlines how to handle the water and solids within the PKC facility. Includes information on PKC design, dam construction, monitoring programs for water, ice & solids stored within the PKC.	Yes	DDMI submitted PKC Facility Operations Plan V5 to WLWB for review in April 2020. Version 5 Plan updates reflect Diavik's proposed modifications to the processed kimberlite deposition and water management within the PKC Facility. In December 2020 DDMI submitted Version 5.1 of the Plan addressing Directives following WLWB's August 2020 approval of Version 5.

Plan & Version Number	Purpose	Updated in 2020 (Y/N)	Updates/ Comments
North Inlet Water Treatment Plant (NIWTP) Operation Manual, v2.1	Provide information about the plant (area layout, treatment capabilities, etc.), operational requirements of the plant (as it relates to water management both on site and within the plant) and plant maintenance requirements.	Yes	WLWB approved updates in March 2020 to remove unnecessary standard operating procedure level details describing how to operate the treatment plant. Removed requirement for sulfuric acid dosing system from the updated plan. DDMI submitted Version 2.1 of the Plan addressing WLWB Directives in April 2020.
Sewage Treatment Plant (STP) Facility Operations Plan, v6	Outlines the design and layout, operating rules, monitoring requirements, what to do in case of an emergency, maintenance and closure of the plant.	No (last WLWB approval in 2011)	N/A
Tier 3 Wildlife Management and Monitoring Plan (WMMP)	Outlines methods to limit impacts to wildlife as a result of mine operations and programs to determine if the distribution (location as it relates to the mine, habitat and region) and abundance (number) of wildlife species are affected by the mine.	Yes	In March 2021 DDMI submitted a Tier 3 WMMP that was developed based on GNWT WMMP guidelines and DDMI's consideration of comments and recommendations following the July 2020 WMMP submission.
Environmental Air Quality Monitoring and Management Plan (EAQMMP)	To identify air quality monitoring requirements on site. The components of the EAQMMP include dust deposition (dust fall) monitoring (as part of the Aquatic Effects Monitoring Program (AEMP)), a snow core program (as part of the AEMP) and reporting to the National Pollutant Release Inventory (NPRI), and the national Greenhouse Gas Reporting Program (GHGRP) to Environment and Climate Change Canada (ECCC).	No	In 2019, DDMI discontinued monitoring for reporting on Total Suspended Solids (TSP) at Diavik for a number of reasons including that TSP results over the past 4 years are below what was predicted from the 2012 dispersion model and that the Arctic environment presents challenges to the operational performance of TSP samplers.

^{*}Management Plan status reflects updates up to May 2021.

Monitoring Programs

Monitoring programs are designed to track changes to the environment as a project develops and are usually linked to predictions from an Environmental Assessment (EA). Monitoring programs required for Diavik are summarized within the water Licence (W2015L2-0001), Fisheries Authorizations or EA. A summary of the monitoring programs conducted during 2020 is outlined in Table 3.

Table 3: Monitoring Programs for the Diavik Mine

Monitoring Program	Purpose	Completed in 2020 (Y/N)	Reporting Frequency/ Comments
Wildlife			
Caribou Behaviour Observations	If/how caribou behaviour changes in relation to distance from mine. Behaviour scans are completed on caribou groups that are observed at the mine site and behaviours of the animals and reaction to disturbances are recorded.	Y	Annually
Aerial Caribou Surveys	Zone of Influence of mining activities in the LDG region.	N	Suspended
Caribou Road Surveys	Effectiveness of mitigation measures.	Y	Annually, initiated based on collar data or reported sightings
Wolverine Snow Track Survey	Provides estimates of relative wolverine activity and distribution in the study area. In winter, wolverine tracks are counted and recorded along transects in the study area. The survey track monitoring occurs annually during late spring.	Υ	Annually. In April 2020 DDMI completed one round of wolverine track surveys but was unable to undertake a second round due to COVID-19 related disruptions to site travel.
Wolverine DNA	Wolverine numbers in the Lac de Gras (LDG) area.	N Program discontinued.	Regional program with GNWT & other mines; last survey 2014.
Grizzly Bear DNA	Bear numbers in the LDG area.	N Program discontinued.	Regional program with GNWT & other mines; last survey 2017.
Regional Falcon Surveys	Support to GNWT in regional estimate of number of nests with birds in them and how many chicks are alive to determine long-term population trends.	Y	Completed every 5 years with GNWT & other mines; last survey in 2020; next survey to be conducted in 2025

Monitoring Program	Purpose	Completed in 2020 (Y/N)	Reporting Frequency/ Comments
Building Inspections	Survey mine buildings and pit walls to identify bird nests and/or wildlife use. Surveys are completed weekly.	Y	Annually
Waste Inspections	Monitor and inspect waste disposal site wide that may attract animals. Waste inspections are scheduled once a week in summer months and twice a week in winter months.	Y	Annually
Incidental Wildlife Presence	Incidental wildlife observations are tracked to monitor presence and also can provide an indication of the potential for wildlife incidents or problem wildlife.	Y	Annually
Wildlife Mortality & Injury	Track any wildlife deaths or injuries associated with mine operations.	Y	Annually
Mine Site Water Quality	Test water against Water Licence limits at a set frequency (Surveillance Network Program, SNP).	Y	As outlined in Water Licence
Lake Water Quality	Changes to water quality in LDG over time (part of AEMP and sampled twice per year – once in winter and once in summer).	Y	Annually
Nutrients, small Plants & Bugs in Water (Plankton)	Changes to nutrients and plants and bugs that live in the water column, over time (part of AEMP and sampled twice per year – once in winter and once in summer).	Y	Annually
Lake Bed Sediments	Changes to sediment quality in LDG over time (part of AEMP) and to determine if sediment quality is impacted by Mine operations. Information from sediments can provide information about Lac de Gras water quality and may help explain effects on lake bottom bugs.	N	Completed every 3 years; last sampled in 2019
Lake Bottom Bugs (Benthics)	Changes to number and type of bugs that live on the lake bottom, over time (part of AEMP). The types of bugs found at a location in LDG and how many there are can provide information on the effects of Mine operations.	N	Completed every 3 years; last sampled in 2019
Large Bodied Fish Health	Fish health tests through palatability (tasting) and/or tissue chemistry.	N	AEMP Traditional Knowledge Study completed every 3 years; next scheduled in 2021

Monitoring Program	Purpose	Completed in 2020 (Y/N)	Reporting Frequency/ Comments
Small Bodied Fish Health (Slimy Sculpin)	Fish health tests through tissue chemistry.	N	Completed every 3 years; last sampled in 2019.
Water Quantity	Measure levels and sources of water used, added or moved on site.	Y	Annually and monthly
Air Quality, Dust & Vege	etation		
Dust Deposition	Amount and chemistry of dust collected in dust gauges and on snow, close to and far from the mine. Dust gauges are placed at 14 stations around the study area and collect dustfall year-round. Snow core samples are collected at 27 stations once a year in winter.	Y	Annually
Meteorological	Weather trends and influence on water balance and dust deposition. Data is collected electronically and manually daily at the Mine site.	Y	Annually
Wildlife Habitat Loss	Track habitat lost due to mine development; total loss and preferred habitats for individual species.	Y	Annually
Vegetation Plots	Changes to type and amount of plants over time, near and far from the mine. Permanent vegetation plots are distributed equally between three vegetation types (heath tundra, tussock-hummock, and shrub).	N	Completed every 5 years; last completed 2016; next scheduled in 2021
Lichen Study	Assess metal levels in lichen and soil, near and far from the mine to determine if dust generated from mine activities is causing a change in metals concentration in lichen; included health assessment for caribou consumption.	N	Completed every 5 years; last completed 2016; next scheduled in 2021

Aquatic Effects (Lake Water Quality & Fish Health)

The AEMP is designed to measure short- and long-term changes in Lac de Gras. Sampling effort focuses on sampling stations in Lac de Gras that are located closer to the mine (where effects would first be expected to occur). There are also sampling stations far away from the mine (where effects would take much longer to occur). Comparing information from both places allows changes in the lake caused by the mine to be measured over time (temporal) and can be measured near the mine site and further away (spatial).

There are 39 sample locations (Figure 2) where many different types of samples are taken. The types of samples that were collected in 2020 included: water quality (e.g. ammonia, metals), the amount and quality of dust deposited, nutrient indicators, and other information used to understand the lake environment, e.g. chlorophyll a (material found in tiny plants that traps light energy from the sun), phytoplankton (tiny plants), zooplankton (tiny animals), and fish.

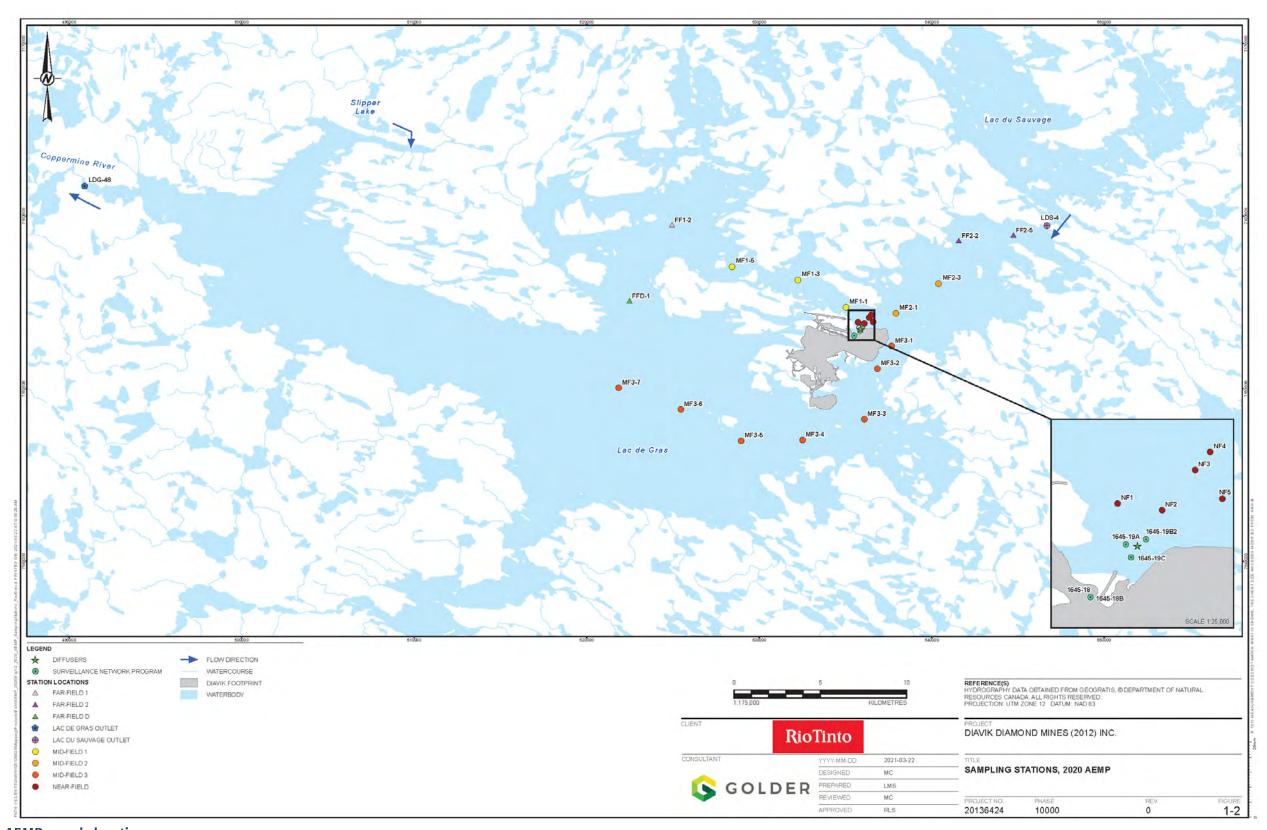


Figure 2 2020 AEMP sample locations.

Air Quality (Dust & Emissions)

The goal of the Dust Deposition Monitoring Program is to understand dust deposition rates (how much dust falls onto the tundra and lake) caused by project activities. The program provides information to support the Wildlife Effects and Aquatic Effects monitoring programs.

The sampling stations for the Dust Deposition Monitoring Program (Figure 3) were set up using a transect approach (series of sample locations that extend outwards on ice and land from the mine site). In October 2017, two new sample stations were added (i.e., Dust 11 and Dust 12) and Diavik now monitors:

- 14 permanent dust gauges fixed-location sampling devices that collect dust for analysis all year long; and,
- 27 seasonal snow survey stations GPS locations where Diavik collects snow samples to measure the amount of dustfall over the winter (27 samples) and the water quality of the snow where dust was deposited on the lake (16 samples).

They are sampled each year and results have been compared to Alberta Ambient Air Quality Objectives and Guidelines for dustfall. Prior to 2019, dustfall results were compared to the former British Columbia (BC) dustfall objective for the mining, smelting, and related industries. These approaches are used by some mines in the Northwest Territories (NWT) for comparison purposes only, as there are no dustfall standards or objectives developed for the NWT.

The goal of the Air Quality Monitoring Program is to help with finding trends in dust levels beyond the area of the mine. Diavik also keeps track of its diesel fuel use to determine greenhouse gas releases to the atmosphere.

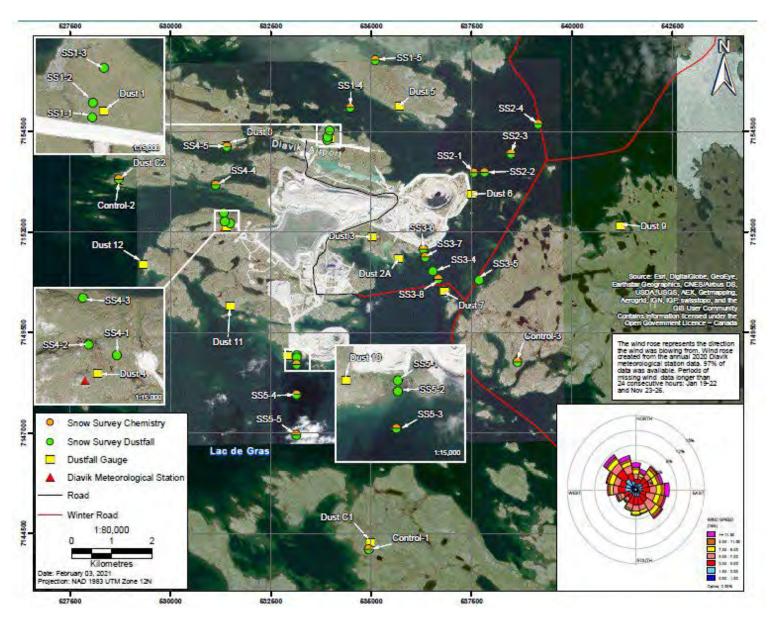


Figure 3 2020 Air quality sample locations – dust and snow surveys.

Surveillance Network Program (Water Quality at the Mine Site)

Diavik monitors water quality around the mine site in accordance with the Surveillance Network Program (SNP), which is a component of Diavik's water licence. The SNP outlines where Diavik collects water samples, how often samples are collected, and what parameters (metals, nutrients and other water quality characteristics) are measured. The SNP also outlines sampling requirements for water that flows into Lac de Gras during dewatering activities (e.g. dike construction).

Diavik monitors dams and dikes around the mine site for potential seepage (water from inside the dam that may flow through the dam to the environment). The dikes and dams are designed to hold back water; however, some seepage (leaking water) through these structures is expected. The purpose of the surveys is to check areas for potential leaks so that Diavik can take appropriate measures to stop the water. The monitoring includes regular inspections of the dam and dike structures and recording the amount of water; some water samples are also taken. The Processed Kimberlite Containment Facility (PKCF) holds enough water that it does not completely freeze in the winter, so water can move within the dam all year round.

Diavik has water interception (capture) wells and a water control system to collect water from the dams before it enters the receiving environment. It includes a number of collection wells and ponds (Figure 4), which surround major structures such as the PKCF, and are monitored.



Figure 4 2020 Surveillance Network Program (SNP) sample locations.

Wildlife and Plant Monitoring

Diavik developed a wildlife monitoring program to check if the actions taken to reduce impacts to wildlife as a result of the Diavik mine project are working. The program is called the Wildlife Monitoring and Management Plan (WMMP) and is a method for detecting, modifying and improving procedures for wildlife and habitat management at the mine site. The WMMP is therefore closely linked with Diavik policies, guidelines and management plans. As outlined in Table 3, the program includes monitoring for vegetation/wildlife habitat, caribou, grizzly bear, wolverine, raptors and waste management. The Diavik wildlife study area is shown in Figure 5.

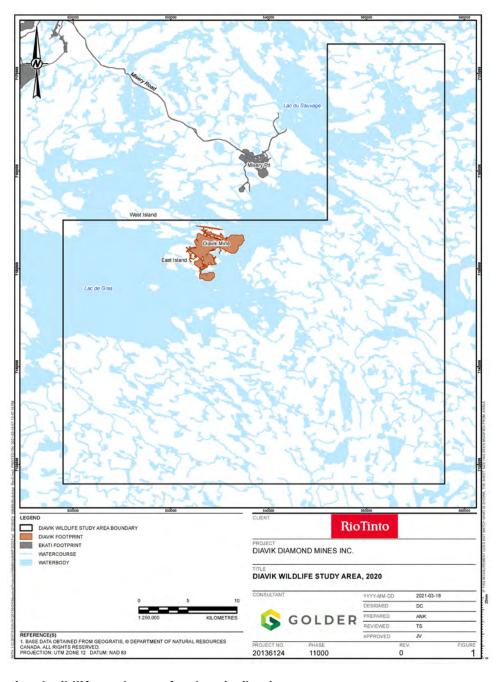


Figure 5 Regional wildlife study area for the Diavik Mine.

3. Results: Summary of Rolling Effects & Monitoring Program Changes

This section gives a summary of monitoring results and changes that have occurred to each program over time. Many of the changes have been made in response to information collected, items missing from study designs or based on feedback from various stakeholders. The Environmental Assessment (EA) included predicted indicators (things we can watch for change) that would either stay the same or change over time. The predictions (estimates) for each indicator have been included in this section, followed by a summary of the information collected to confirm those predictions over the years. Graphs and figures or tables are given where practical to show the trends over time. Where trends are not similar to those predicted, DDMI has included a brief discussion of possible reasons. Further details can be found in the full reports that Diavik produces for each topic and a plain-language summary of what the results from the environmental monitoring programs mean is included as a 'Report Card on the Environment' in the Environmental Monitoring Advisory Board's (EMAB) Annual Report.

Water and Fish

At Diavik, water quality and fish health are monitored through the Aquatic Effects Monitoring Program (AEMP). The discussions below regarding fish and water come from the results of the AEMP.

Water

What effect will the mine development have on water quality?

EA Predictions and Overall Status:

• Water will remain at a high quality for use as drinking water and by aquatic life (i.e. meet CCME thresholds);

Confirmed to date based on AEMP sample results; there is strong evidence for nutrient addition in Lac de Gras and weak evidence that toxic effects are occurring.

• Localized zones of reduced quality during dike construction;

Confirmed based on water samples during construction – all dike construction completed.

 Nutrient enrichment (increased nutrients, particularly phosphorus), primarily from the mine water discharge, could change the trophic status (a measure of how productive the lake is) of Lac de Gras of up to 20% (or 116km²) during operations. The overall trophic status in most of Lac de Gras is not expected to change.

Confirmed to date based on AEMP sample results – the area of Lac de Gras impacted by phosphorus varies by year and has exceeded the 20% (or 116km²) threshold twice during ice cover but never during open water.

Post-closure runoff (water flowing off the mine site) expected to affect the quality of two
inland lakes.

Post-closure effects cannot be measured at this time.

2020 Observations:

Twenty-one water quality parameters (e.g. minerals and metals) triggered Action Level 1 (out of a total of 9 Action Levels) for mine effluent water quality, which is considered an early-warning indicator of effects in Lac de Gras. Of the twenty-one water quality parameters, eight (8) also triggered Action Level 2 which is still considered early-warning and triggers a requirement to develop an AEMP Effects Benchmark (threshold criteria). None of the water quality parameters reached Action Level 3 (Table 4 below). Regulated effluent parameters remained below the limits stated in the Water Licence. Plankton data did not trigger an Action Level, though Chlorophyll *a* triggered Action Level 2.

Table 4: Action Levels for 2020 AEMP.

Component	Variable	Action Level
	Total Dissolved Solids (calculated) - Ice-Cover	2.
	and Open-Water Total Suspended Solids - Open-Water	1
	Turbidity – lab – Ice-	1.
	Cover Chloride - Ice-Cover and	2
	Open-Water Sulphate - Ice-Cover	1
	Sulphate - Open-Water	2
	Ammonia - Open-Water	1
	Nitrate - Ice-cover and Open-Water	2
	Aluminum - Ice-Cover	11
	Antimony-Ice-cover and Open-Water	1
	Barium - Ice-Cover	1
Water Quality	Calcium - Ice-Cover and Open-Water	1
	Chromium - Ice-Cover	1
	Copper- Ice-Cover	1
	Magnesium - Ice-Cover	Ī
	Molybdenum - ce- Cover and Open-Water	2
	Potassium - Open- Water	ĺ.
	Silicon - Ice-Cover and Open-Water	î.
	Sodium - Ice-Cover and Open-Water	2
	Strontium - Ice-Cover and Open-Water	2
	Sulphur - Ice-Cover	1
	Uranium - Ice-Cover	1
	Uranium - Open-Water	2
Eutrophication	Chlorophyll a	2

The 2020 effluent toxicity results indicated that the effluent discharged to Lac de Gras in 2020 was non-toxic.

Elevated concentrations of nutrients extending to various distances from the Mine (depending on variable and season) suggest the Mine is increasing nutrients in Lac de Gras. In 2020, the total phosphorus (a nutrient) concentration was below the normal range; therefore, the area of the lake

affected by total phosphorus was o%. The extent of effects from total nitrogen (a nutrient) was 40 to >48% (or 200-240km²) of the lake depending on the season. The extent of effects on chlorophyll a, a good measure of the effects of nutrient enrichment, was estimated as 0.1% (or 0.5km²) of the lake area.

The extent of mine-related effects on phytoplankton and zooplankton was 2.8% and 57%, respectively, of the lake. Results are consistent with nutrient addition, as demonstrated by increase in small plants and bugs in the water column near the mine.

In 2020, nearly all concentrations (>99%) of variables in samples collected at the mixing zone boundary (where mine effluent is discharged to the lake) were within the relevant AEMP water quality Effects Benchmarks that are based on the Canadian Water Drinking Quality Guidelines for the protection of aquatic life and drinking water (Table 3-2 of AEMP 2020 Annual Report).

The Weight of Evidence (WOE) assessment is meant to rank impacts to Lac de Gras using the data collected by the AEMP. Impacts from different parts of the program (e.g. Fish Health) are rated as being: negligible/none (score of o), low (1), moderate (2) or strong (3). They are also categorized as either 'toxicological' (harmful response) or 'nutrient enrichment' (increased nutrients). The previous WOE assessment in 2019 indicated that nutrient addition is happening in Lac de Gras, however there is nothing that shows a toxic effect in Lac de Gras from mine operations. The next WOE assessment is scheduled for 2022.

2017-2019 3-year Summary Report Observations

Treated water that is put back into the lake has been tested between 2002 and 2019 and it was found to be not toxic when tested with tiny fish and animals that live in the water column. Over 850 toxicity tests have been done during this period. The treated water from the mine continues to meet the requirements for quality described in the Water Licence. The goal of the AEMP re-evolution was to provide a summary of changes and effects observed on the water quality of the lake overtime. The importance of an effect was calculated by comparing water chemistry in different areas in the lake to background values (which is considered "normal" for Lac de Gras) and Effect Benchmarks (similar to chronic or long-term water quality guidelines) and reviewing trends to see if amounts were higher or lower over time. Background values for Lac de Gras are those that fall within what is called the "normal range". The normal range describes the range of natural differences that are found within the chemistry of a lake that has not been impacted by development. An amount that is greater than the normal range is not considered normal for Lac de Gras, but it does not mean that it is harmful. Effect Benchmarks (similar to water quality guidelines) are a better measure when a chemical may be harmful to animals that live in the water. Concentrations of total dissolved solids, chloride, calcium, magnesium, potassium, sodium, and sulphate in Lac de Gras were greater than the normal ranges in both the ice-cover and open-water seasons and are generally increasing over time. Molybdenum and strontium were also found in Lac de Gras at concentrations above the normal range, particularly in the near-field and mid-field areas. This increase matches up with the amounts of these chemicals we measure in the mine's treated water discharge.

Construction of the A21 Dike occurred between 2015 and 2017 and dewatering of the dike occurred during the 2018 reporting period. While there was a noticeable effect in the quantity of sediment-

related variables in the region of the A21 dewatering during 2018, there was no dike effect evident for any water quality variable in 2019, indicating that effects from the A21 construction and dewatering have not persisted in Lac de Gras. Most substances with Effects Benchmarks had levels that were consistently below Effects Benchmarks at the area where the treated mine water discharges into Lac de Gras during the AEMP monitoring period from 2002 to 2019.

The sediment quality component of the AEMP measures chemicals in mud at the bottom of the lake. Eighteen chemicals measured in sediment from 2007 to 2019 had greater average levels in the near-field area compared to the far-field areas for at least one year, but none of these had levels above guidelines for protecting plants and animals that live in or near the sediments in 2019. Two sediment-related substances have shown an increasing trend in recent years in the near-field area, but their levels are well below guideline recommendations.

Nutrient levels throughout Lac de Gras continue to remain low. Chlorophyll *a* (which uses sunlight to help plants in the water grow) and plankton (small plants and animals that live in the water) show effects related to increased nutrients closer to the mine. Total phosphorus and chlorophyll *a* concentrations have decreased in recent years, though levels in both were higher closer to the mine. Chlorophyll *a* concentrations were generally above the normal range in all years except in 2019. Total nitrogen levels have increased in all areas of Lac de Gras, with greater increases seen further from the mine and at the outlet of Lac de Gras near the mouth of the Coppermine River. Nitrogen concentrations have been above the normal range in over 20% of the lake since 2008. The extent of lake area affected was greater than 20% from 2007 to 2019, with 100% of lake area affected in 2019 during open-water and 85% of lake area affected during the ice-cover season. The area with greater amounts of chlorophyll *a* increased between 2007 and 2016 to over 40% of lake area, however, more recently, the affected area decreased with only 0.1% of the lake area affected in 2019. The EA predicted that phosphorus concentrations would not exceed 5 micrograms per litre in more than 20% of the area of Lac de Gras. So far, this prediction has been exceeded twice during the ice-cover season (2008 and 2013), but it has never been exceeded during the open-water season.

Relationships between chlorophyll *a*, nutrients and total dissolved solids were examined. The results of this monitoring component and the Plankton component agree and indicate mild Mine-related nutrient enrichment in the eastern part of Lac de Gras.

The effect of nutrient inputs from Mine-related falling dust in Lac de Gras was reanalyzed for this summary report. The overall conclusion from dust and biological monitoring under the AEMP is that there is no indication that nutrient amounts and biological (living plant and animals) communities are measurably impacted by falling dust on top of the enrichment effect resulting from the Mine effluent discharge.

The plankton component of the AEMP evaluated whether there were any changes happening to the tiny plants and animals that live in the water in Lac de Gras. Changes in plankton can affect fish in the lake because fish eat them, and changes in plankton can happen before fish are affected. Differences in the plankton communities between areas closer to and further from the mine have been seen every year between 2007 and 2016. Conditions in Lac de Gras are suitable for growth of healthy plankton

communities. Overall, the changes to plankton communities in Lac de Gras continue to reflect the increase in nutrients closer to the mine.

The benthic invertebrates component of the AEMP looks at whether the treated mine water put back into Lac de Gras has caused changes over time in the numbers and types of small bugs that live on the bottom of Lac de Gras. Benthic invertebrates include snails, clams, worms and insects. These bugs are food for fish and changes in the numbers and types of them can eventually cause changes in the numbers and types of fish in the lake. Effects of nutrient addition have also been observed for the bugs on the bottom of the lake. This enrichment effect has resulted in larger numbers of invertebrates in areas closer to the mine in some years, though populations generally stayed within their normal ranges since 2012.

Slimy Sculpin, which is a small fish that lives and stays in small local areas, who live close to the mine (i.e., in the near-field area) were relatively small and had smaller livers than fish captured further from the Mine (i.e., in the far-field area). These fish were similar in size to those caught in previous years and this difference does not appear to be changing over time. This suggests differences in habitat may be responsible for these differences, rather than the Mine. For example, water temperatures were cooler in the near-field area than the far-field area and this may have caused fish to grow more slowly in the near-field area. In general, while there are some small differences in fish size, fish are healthy overall, and can grow and reproduce.

A fish salvage program in the area of the A21 dike occurred in 2015 and 2016 during the open-water season. The main goals were achieved for program: local communities were engaged and actively involved in the fishing and processing effort, and fish were successfully transferred to Lac de Gras. Of the 309 fish captured, 148 fish were transferred and released live into Lac de Gras. The total catch of fish removed from the A21 area was less than predicted. As a result, only a few fish could be distributed to the local communities. A possible explanation for the observed fish density is that the dike perimeter remained open to the rest of Lac de Gras for an extended period prior to completion of the rock dike in 2016, allowing fish the opportunity to leave the construction zone and move to the main body of the lake. As a result, only a small percentage of the fish population that would have originally been present remained isolated within the dike perimeter.

The weight-of-evidence section of the AEMP combines the information and results of lake and treated mine water quality, eutrophication indicators (signs of increased nutrient availability), sediment quality on the lake bottom, tiny plants and animals in the water, bugs and invertebrates that live on the bottom of the lake, and fish health. It tries to summarize the overall health of the lake when all these factors (influences) are considered together. A process was used to estimate the strength (or weight) of evidence for nutrient increases and toxic effects occurring in Lac de Gras from 2007 to 2019 (Figure 6) using an Evidence of Impact (EOI) ranking system (EOI o = negligible (very little) evidence of impact, EOE1 = low evidence of impact, EOI 2= moderate evidence of Impact, EOI 3 = strong evidence). Overall, there is strong evidence for nutrient level increase in Lac de Gras and weak evidence that toxic effects are occurring. This will next be updated as part of the 2020-2022 AEMP Reevaluation report.

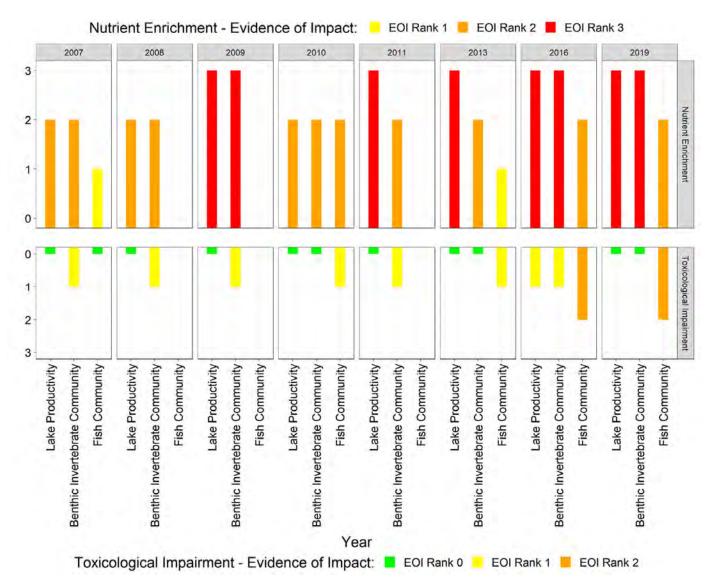


Figure 6 2007 – 2019 weight of evidence summary.

2019 Observations:

No Action Levels were triggered in 2019 for the eutrophication indicators (nutrients), benthic invertebrate community and plankton.

Sixteen water quality parameters (e.g. minerals and metals) triggered Action Level 1 (out of a total of 9 Action Levels) for mine effluent water quality, which is considered an early-warning indicator of effects in Lac de Gras. Of the sixteen water quality parameters, nine (9) also triggered Action Level 2 which is still considered early-warning and triggers a requirement to develop an AEMP Effects Benchmark (threshold criteria). None of the water quality parameters reached Action Level 3 (Table 5 below). Regulated effluent parameters remained below the limits stated in the Water Licence.

Table 5: Action Levels for 2019 AEMP.

Component	Variable	Action Level
	Total Dissolved Solids - Ice Cover and Open Water	2
	Turbidity – lab - Ice Cover	1
	Calcium (dissolved) - Ice Cover and Open Water	1
	Chloride - Ice Cover and Open Water	2
	Magnesium (dissolved) - Ice cover	1
	Sodium (dissolved) - both	2
Water Quality	Sulphate - open water	2
Water Quality	Sulphate - ice cover	1
	Ammonia - open water	2
	Nitrate - Open Water	2
	Nitrate - Ice Cover	1
	Aluminum - Ice Cover	1
	Barium - Ice Cover	1
	Manganese - Ice Cover	1
	Molybdenum - Ice Cover and Open Water	2
	Silicon - Ice Cover	1
	Strontium - Ice Cover and Open Water	2
	Uranium - Ice Cover and Open Water	2
	Total Bismuth	2
Sediment Quality	Total Molybdenum	1
	Total Uranium	1
Fish	Fish	2

The 2019 effluent toxicity results indicated that the effluent discharged to Lac de Gras in 2019 was non-toxic.

Elevated concentrations of nutrients extending to various distances from the Mine (depending on variable and season) suggest the Mine is increasing nutrients in Lac de Gras. In 2019, the total phosphorus (a nutrient) concentration was below the normal range; therefore, the area of the lake affected by total phosphorus was 0%. The extent of effects from total nitrogen (a nutrient) was the entire lake area during the open-water season and 85% (or 484km²) of the lake during the ice-cover season. The extent of effects on chlorophyll *a*, a good measure of the effects of nutrient enrichment, was estimated as 0.1% (or 0.5km²) of the lake area.

Mine-related effects on bottom sediments in areas of Lac De Gras near the mine (Near Field stations) were identified for some metals and nutrients; however, none of the metal and nutrient concentrations triggered an Action Level higher than 2.

The extent of mine-related effects on phytoplankton and zooplankton was 0% and 29%, respectively, of the lake. The 2019 plankton and benthic invertebrate data do not suggest that adverse effects are occurring in Lac de Gras. Results are consistent with nutrient addition, as demonstrated by increase in small plants and bugs in the water column near the mine.

The 2019 slimy sculpin study showed the sculpin fish were healthy, in good physical condition, and reproducing. Some fish samples showed signs of parasites, specifically tapeworms, but this presence of parasites was not associated with closeness to the Mine. Fish tissue concentrations of metals from fish sampled in 2019 were similar to results since 2013, with the exception of molybdenum which exhibited an increase of 34%.

In 2019, a Special Effects Study (SES) was conducted in August to provide additional information to support the evaluation of potential dust-related effects on water quality and aquatic life. The conclusions of the study showed that dust fall is likely to have a slight influence on lake water quality and that it is not responsible for phosphorus (nutrient) loading to Lac de Gras. The treated water from the North Inlet Water Treatment Plant (NIWTP) was the main source for phosphorus loading. Based on the results of this study additional sampling effort in the lake to further investigate if dust has an impact on the lake is not necessary.

In 2019, nearly all concentrations (>99%) of variables in samples collected at the mixing zone boundary (where mine effluent is discharged to the lake) were within the relevant AEMP water quality Effects Benchmarks that are based on the Canadian Water Drinking Quality Guidelines for the protection of aquatic life and drinking water (Table 3-2 of AEMP 2019 Annual Report).

The Weight of Evidence (WOE) assessment is meant to rank impacts to Lac de Gras using the data collected by the AEMP. Impacts from different parts of the program (e.g. Fish Health) are rated as being: negligible/none (score of o), low (1), moderate (2) or strong (3). They are also categorized as either 'toxicological' (harmful response) or 'nutrient enrichment' (increased nutrients). The overall WOE indicated that nutrient addition is happening in Lac de Gras, however there is nothing that shows

a toxic effect in Lac de Gras from mine operations. The WOE results for the 2019 AEMP are presented in the below table.

Table 6 Weight-of-Evidence Results, 2019 AEMP

Ecosystem Component	Rating
Toxicological Impairment	
Lake Productivity	0
Benthic Invertebrates	0
Fish Population Health	2
Nutrient Enrichment	
Lake Productivity	3
Benthic Invertebrates	3
Fish Population Health	2

2018 Observations:

• Nineteen water quality parameters (e.g. a metal or nutrient) triggered Action Level 1 (out of a total of 9 Action Levels) for water quality, which is considered an early-warning indicator of effects in Lac de Gras. These included many previously identified parameters and four additional ones that were added this year (i.e., ammonia, iron, lead and titanium) because concentrations at stations that may be affected by dust in the middle of the lake were slightly higher than the natural water quality for Lac de Gras. There were also 10 out of the 19 parameters also reached Action Level 2. This is still considered early-warning and triggers a requirement to develop an AEMP Effects Benchmark (threshold criteria). Most parameters that reached Action Level 2 already have a benchmark value, with the exception of calcium; Diavik will therefore develop a response for this. Regulated effluent parameters remained below the limits stated in the Water Licence.

Elevated concentrations of nutrients extending to various distances from the Mine (depending on variable and season) suggest the Mine is increasing nutrients in Lac de Gras. In 2018, the total phosphorus concentration was elevated above the normal range in a very small area of the lake (i.e. 0.5%). The extent of effects from total nitrogen was around 40.8% of the lake area, and on small plants and bugs in the water column, the extent of effects was 16.8% and around 12.8% of the lake, respectively. The extent of effects on chlorophyll *a* was estimated as 14.7% of the lake area.

The 2018 plankton data do not suggest that adverse effects are occurring in Lac de Gras. Results are consistent with nutrient addition, as demonstrated by increase in small plants and bugs in the water column near the mine.

2017 Observations:

• Sixteen water quality parameters showed an early-warning indicator of effects in Lac de Gras. Three additional variables (i.e., ammonia, lead and tin) were added to a list of substances of interest in 2017, because possible effects of dust were seen in lake areas a short way from the mine. The Regulated effluent parameters from the Water Licence were all below requirements.

Elevated amounts of nutrients extending to various distances from the Mine (depending on variable and season) suggest the Mine is adding nutrients to Lac de Gras. In 2017, total phosphorus was above the normal range in 1.1% of the area of Lac de Gras. Effects on total nitrogen were seen in about 41.9% of the lake area. Effects on phytoplankton was 19.4%, while that for zooplankton weight was less than 0.6% of Lac de Gras. Effects on chlorophyll *a* was estimated at around 26.2% of the lake area.

These results show that nutrient addition is happening in Lac de Gras, however there is nothing that shows a toxic effect in Lac de Gras from mine operations. There was no clear pattern to show if increased nutrients followed the plume of water discharged from the mine's water treatment plant. For zooplankton there was a clear pattern showing decreasing amounts further from the mine's discharge. The results also indicated that there are different types of species that are seen closer to the mine.

2014-2016 3-year Summary Report Observations:

The treated water that is put back in the lake has been tested between 2002 and 2016 and it was found to be generally not toxic when tested with fish and tiny animals that live in the water column. Over 700 toxicity tests were done during this period. The treated water from the mine continues to meet the requirements for quality described in the Water Licence. The importance of an effect was calculated by comparing the water chemistry in different areas in the lake to the background values (what is considered 'normal' for Lac de Gras) and Effect Benchmarks (similar to a water quality guideline) as well as by reviewing trends to see if amounts were higher or lower over time. Background values for Lac de Gras are those that fall within what is called the "normal range". The normal range describes the natural differences that are found within the chemistry of a lake that has not been impacted by development. An amount that is greater than the normal range would not be considered normal for Lac de Gras, but it also doesn't mean that it is harmful. Effect Benchmarks (similar to water quality guidelines) are a better way to measure when a chemical may be harmful to animals that live in the water. Concentrations of total dissolved solids, chloride, fluoride, calcium, potassium, sodium, and sulphate in Lac de Gras were greater than the normal ranges in both the ice-cover and open-water seasons and are generally increasing over time. This increase matches up with the amounts of these chemicals we measure in the mine's treated water discharge. Water quality results from 2015 and 2016 also showed the effects of the A21 dike construction on the water closer to the mine. Results from the west side of the lake show possible cumulative effects in this area because of the Diavik and Ekati mine discharges. However, the amount of these chemicals in the affected area of Lac de Gras remain low and were not seen

in all years of monitoring. The majority of chemicals with Effects Benchmarks had levels below those values from 2002 to 2016 in the area where the treated mine water discharge mixes with the lake water.

Nutrient levels remain low throughout Lac de Gras, though chlorophyll *a* (which uses sunlight to help plants in the water grow) and plankton (small plants and animals that live in the water) show effects related to increased nutrients closer to the mine. The amount of nitrogen has been above the normal range in over 20% of the lake since 2008, with up to as much as 84% of the lake area being considered as affected in 2016. The area with greater amounts of chlorophyll *a* has also increased between 2007 and 2016, to over 40% of lake area. The EA predicted that the amount of phosphorus would not exceed 5 micrograms per litre in more than 20% of the area of Lac de Gras. So far, this prediction has been exceeded twice during the ice-cover season (2008 and 2013), but it has never been exceeded during the open-water season.

The sediment quality component of the AEMP measures chemicals in the mud at the bottom of the lake. Seventeen chemicals measured in sediment from 2007 to 2016 had greater amounts in areas closer to the mine when compared to areas further from the mine. However, none of these were in amounts above guideline values for protecting plants and animals that live in or near the sediments.

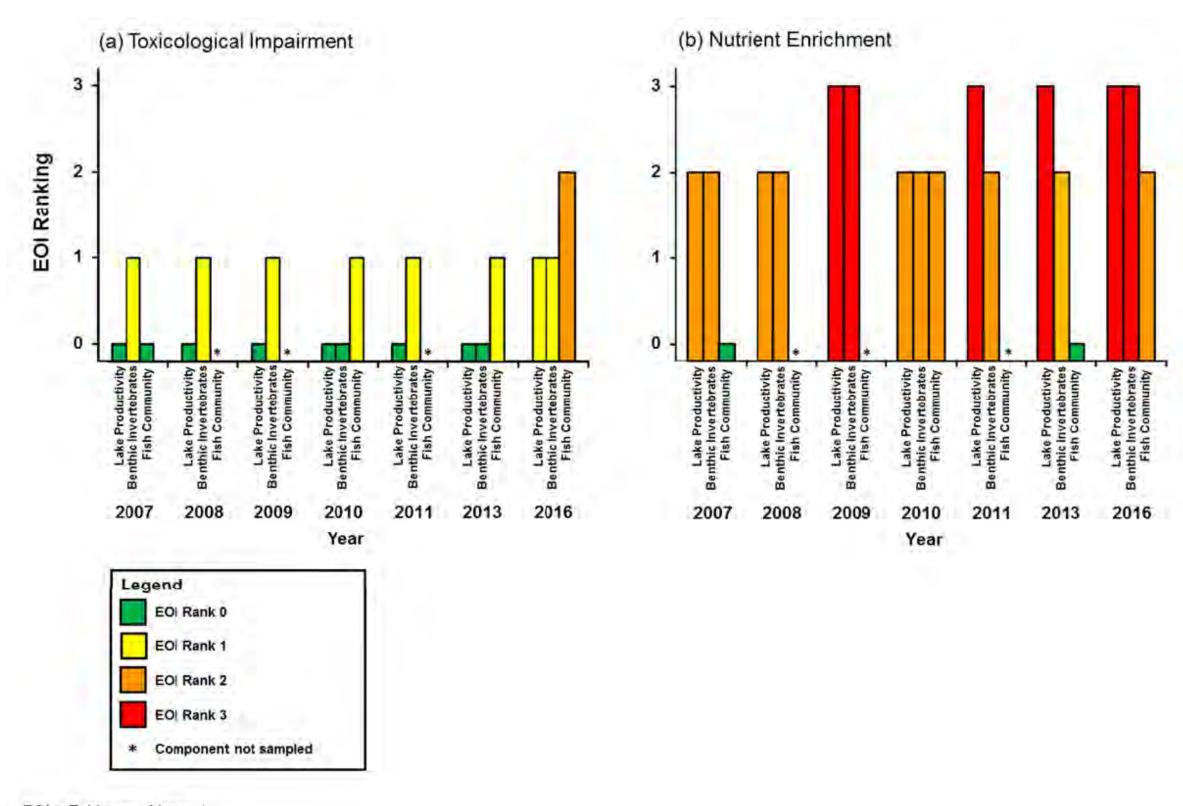
The plankton component of the AEMP evaluated whether there were any changes happening to the tiny plants and animals that live in the water in Lac de Gras. Changes in plankton can affect fish in the lake because fish eat them, and changes in plankton can happen before fish are affected. Differences in the plankton communities between areas closer to and further from the mine have been seen every year between 2007 and 2016. Conditions in Lac de Gras are suitable for growth of healthy plankton communities. Overall, the changes to plankton communities in Lac de Gras continue to reflect the increase in nutrients closer to the mine.

The benthic invertebrates component of the AEMP looks at whether the treated mine water put back into Lac de Gras has caused changes over time in the numbers and types of small bugs that live on the bottom of Lac de Gras. Benthic invertebrates include snails, clams, worms and insects. These bugs are food for fish and changes in the numbers and types of them can eventually cause changes in the numbers and types of fish in the lake. Effects of nutrient addition have also been observed for the bugs on the bottom of the lake, but recent results suggest a weakening of this effect.

Slimy Sculpin, which is a small fish that lives and stays in small local areas, that live close to the mine are generally smaller in size than those that live farther from the mine. The fish living close to the mine have stayed the same size over time, which suggests that the reason for the size difference is other factors (like fish habitat). For example, water temperature is colder closer to the mine and gets warmer farther from the mine; this might make some fish grow more slowly in

the near-field area. In general, while there are some small differences in fish size, fish are healthy overall, and able to grow and reproduce.

The weight-of-evidence section of the AEMP combines the information and conclusions of the sections of the AEMP report that look at lake and treated mine water quality, eutrophication indicators (signs of increased nutrient availability), sediment quality on the lake bottom, tiny plants and animals that live in the water, bugs that live on the bottom of the lake and fish health. It tries to summarize the overall health of the lake when all of these things are considered together. A process was used to estimate the strength (or weight) of evidence (proof) for nutrient addition or toxic effects occurring in Lac de Gras from 2007 to 2016 (Figure 7). Overall, there is strong evidence for nutrient addition in Lac de Gras and weak evidence that toxic effects are occurring. This will next be updated as part of the 2017-2019 AEMP Re-evaluation Report.



re 7 Weight-of-Evidence Summary (2007-2016).

Figure 7

Updates to the AEMP Design (the document that describes what, when, where and how to sample the lake) and the Reference Conditions Report (the document that says the amount of each substance that is considered typical for Lac de Gras) were put forward in response to the results from the 3-year evaluation. This includes: studying mine-related effects by looking at trends across the lake (instead of comparing area results from near the mine and farther from the mine), changes to the number and location of sample points farther from the mine, changes to how Action Levels are evaluated and explained and minor updates to the list of what is tested for at the lab. The sampling schedule for tiny plants and animals that live in the water column has been changed to every year in the middle of the lake (it used to be once every three years), so that they can look at possible effects on tiny plants and animals in the main body of the lake on an annual basis.

2016 Observations:

As noted in the 2015 EAAR, AEMP report submissions have been off schedule the past few years to address some information requested by the WLWB. As such, the 2016 EAAR includes AEMP updates for the 2015 and 2016 AEMP Annual Reports. The 2015 AEMP Annual Report was submitted to WLWB on 15 September 2016 and the 2016 AEMP Annual Report was submitted on 31 March 2017; both reports had not yet been approved by the end of 2016. Diavik developed a Reference Conditions Report (2015) that is used to calculate and record the expected range of values for water quality parameters so that these can be used for comparisons in AEMP data calculations going forward. It also provides reference area (natural background) levels for the lake. The 2015 and 2016 monitoring was based on the AEMP Study Design Plan, Version 3.5 (2014). This document describes the sampling program and actions to take in response to findings. Diavik submitted an updated version of the AEMP Study Design Plan (V4,) and the Quality Assurance Project Plan (V3, the document that describes the care taken in field, lab and data analysis procedures to provide reliable results) to the WLWB in July 2016. Approval of these documents was still pending at the end of 2016. Lastly, the 2014-2016 Re-evaluation Report, which summarizes AEMP findings to date on a 3-year basis, is due 6 months after approval of the 2016 AEMP Annual Report. Key results from the 2016 program are outlined below.

Dust deposition rates in 2016 were higher than in 2015 because of A21 dike construction activities. Deposition rates were highest close to the Mine infrastructure and decreased with distance from the Mine. The effluent (treated water discharged from the water treatment plant) water quality limits in the Water Licence are often used as a comparison for snow water quality and the 2016 results were lower than those stated in the Licence.

Mine effluent triggered Action Levels (which are considered an early-warning of possible effects in the area close to the mine) for 15 water quality variables, including turbidity, calculated total dissolved solids (TDS), calcium, chloride, sodium, sulphate, nitrate, aluminum, copper, lead, manganese, molybdenum, silicon, strontium, and uranium. Based on the amount of the following substances found in the treated mine water, eleven additional variables - total suspended solids (TSS), bismuth, chromium, cobalt, fluoride, iron, nitrite, thallium, titanium, vanadium, and

zirconium - were added to the list of parameters to watch for in Lac de Gras (also called Substance of Interest, or SOI). Action Levels, explained in the Design Plan, are triggered well before unacceptable effects could occur. Regulated effluent parameters were all below applicable effluent quality criteria (EQC) in the Water Licence. The 2016 effluent toxicity results indicated that the effluent discharged to Lac de Gras in 2016 was generally non-toxic.

Increased amounts of nutrients moved across the lake to reach various distances from the Mine (depending on the type and season), and concentrations of chlorophyll a were higher than the top of the normal range in areas close to the mine. This suggests the Mine is having a nutrient enrichment (increase) effect in Lac de Gras. In 2016, 6.5% of Lac de Gras was considered affected with respect to total phosphorus (TP) concentrations, the extent of effects on total nitrogen (TN) was 84.7% of the lake area and that for chlorophyll a was 43.7%. This triggered an Action Level response, as noted in the AEMP Design Plan, and a Response Plan is being developed.

The 2016 phytoplankton (tiny plants that float in the water) results show no signs of a Mine-related effect in Lac de Gras. However, zooplankton (tiny animals that float in the water) results suggest that changes are occurring in areas near the mine may be related to an increase in nutrients. Phytoplankton and zooplankton biomass (the total weight of these tiny plants and animals) was 13.0% and 0.5%, respectively, of Lac de Gras. The amount near the mine remained within the normal range of values expected for zooplankton and this tells us that the reason for the decrease is not likely to be contamination. An Action Level response was triggered because the amount of zooplankton close to the mine was lower than it is farther from the mine (the opposite of what would likely be expected) and DDMI plans to investigate the cause for this.

Nine sediment (mud on lake bottom) quality variables in the area near the mine were in amounts greater than areas far from the mine, including TN, bismuth, lead, molybdenum, potassium, sodium, strontium, tin, and uranium. These variables were added to the list of parameters to watch for in Lac de Gras. There are no Action Levels for sediment quality. Based on published studies and available sediment quality guidelines, concentrations of bismuth, lead, and uranium encountered in sediments near the mine are unlikely to contaminate species of plants and fish.

Differences in the benthic invertebrates (small bugs that live on the bottom of the lake) between the area close to the mine and those areas far from the mine demonstrated a slight response to increased nutrients. Greater densities (amount of bugs in a given space) were observed closer to the area where treated mine water flows back into the lake and there were a lot more midges in this area when compared to areas further from the mine. Species evenness (how close the number of each species is in different areas) was affected by the number of midges near the mine and this triggered an Action Level response to investigate the cause and confirm the effect. The average values for all of the measurements taken for lake bottom bugs close to the mine were within expected levels.

Overall, the weight of evidence evaluation showed more of an environmental response to increases in nutrients in Lac de Gras rather than signs of a contamination response. There appears to be a clear link between nutrient releases (i.e., TP and TN) to Lac de Gras from the treated Mine

water resulting in greater amounts of nutrients and lake productivity at areas closer to the mine. There was also a response that showed more and different distributions of bugs (midges) that can be linked to increased nutrients. Although there are differences between the areas closer to and farther from the mine for nutrients, there appears to be little effect on the ability of the lake to support and maintain its health.

2015 Observations:

Dust deposition rates in 2015 were higher than in 2014. Deposition rates were highest close to the project infrastructure and decreased with distance from the Mine. The effluent (treated water discharged from the water treatment plant) water quality criteria in the Water Licence are often used as a comparison for snow water quality and the 2015 results were lower than those stated in the Licence for all except one sample (which was taken from an incorrect location).

The treated water discharged back into Lac de Gras had an effect on 17 water quality parameters (total dissolved solids [TDS, calculated], turbidity, calcium, chloride, potassium, sodium, ammonia, nitrate, aluminum, antimony, chromium, copper, molybdenum, silicon, strontium, uranium and vanadium). The concentrations of these variables in the area near the mine were higher than those measured further from the mine (reference area). As a result, an Action Level response, explained in the AEMP Design Plan, was triggered. These are considered as early-warning signs of possible effects in the area close to the mine and are triggered well before unacceptable effects could occur.

Results from water quality sampling suggest that the Mine is causing a slight increase in nutrients, as also reported during previous years of monitoring. Higher amounts of total phosphorus (TP) and total nitrogen (TN) were observed in the areas near the mine when compared to areas further away from the mine. Less than 20% of the lake area had concentrations of chlorophyll *a* higher than the normal range. This also triggered an early-warning Action Level response in relation to nutrient levels.

The 2015 plankton (small plants and animals living in the water) monitoring results suggest that zooplankton communities in Lac de Gras are exhibiting a Mine-related effect in response to increased nutrients, consistent with the results for water quality. The 2015 plankton results provided no direct evidence of contamination, as all measurements taken were within normal levels. However, the total weight of small plants in areas near the mine was lower than those further from the mine. This triggered an Action Level response for possible contamination and the presence of this early warning change will be confirmed during the 2016 AEMP analysis.

2014 Observations:

As noted in the 2014 EAAR, the Annual AEMP report submission was delayed due to a request for further information from the WLWB. An updated version of the 3-year (2011-2013) Summary Report of the AEMP was submitted to the WLWB in April 2016, and the 2014 AEMP Annual Report was submitted on 31 March 2016. The development of the Reference Conditions Report for Lac de Gras is the main reason for these delays. It is a report that calculates and explains the background (natural) water quality and allows regulators to better determine the level of any

effect on the lake. As such, the updated 3-year Summary Report and the 2014 Annual report are summarized in this section. The 2015 Annual AEMP Report as well as Version 4 of the AEMP Design document are both due on 30 June 2016.

Water quality tests showed that there were 19 elements that had amounts over two times higher close to the mine when compared to samples taken further away in Lac de Gras. Eight of these were also above what is considered the normal range for their concentrations in Lac de Gras. Diavik is taking the appropriate actions outlined for such a response, as detailed in the approved Action Level Framework for water chemistry.

Nutrient addition to the lake, as measured by nitrogen, phosphorous and parts of algae concentrations, continued to show mild enrichment (an increase in nutrients) close to the mine compared to other areas farther from the mine. The small plants and animals that live in the water column (plankton) have increased in light of the increased nutrients, and tests do not show signs of harm (toxicological impairment) to the number or types of organisms that are present.

2011-2013 3-year Summary Report Observations:

Below is a summary of the updated findings for each of the monitoring activities included in the Aquatic Effects Monitoring Program, and it focuses on results from 2011 to 2013.

- The treated water that is discharged back into Lac de Gras has shown changes in quality over the years. For example, salts such as calcium and chloride have decreased since 2010. Some metals have increased over time (molybdenum, strontium), however most have decreased (aluminum, barium, copper, manganese) or stayed the same (chromium, uranium, antimony, silicon). The tested mine effluent has continued to meet water Licence criteria. Additionally, most of the effluent tested over the years has been non-toxic, with over 500 toxicity tests conducted since 2002.
- A total of 25 different chemicals had levels that were greater near the mine versus further away. Of these, 14 had higher levels than what is considered normal for Lac de Gras, but this does not necessarily mean that it is harmful. None of the chemicals tested were higher than what are called benchmark values, which measures when a chemical may be harmful to aquatic life. With the exception of chromium in 2004 and 2006, water quality has remained below the guidelines for protection of aquatic life throughout the life of the mine.
- Increased productivity (eutrophication) was a predicted effect for Lac de Gras because groundwater and treated mine water would introduce more nutrients into the lake. This is why monitoring nutrients (phosphorous and nitrogen) and algae growth (determined by measuring chlorophyll *a*, the green pigment in algae) is important to measure over time. Concentrations of nitrogen and have been higher than the normal range in over 20% of the lake since 2008 and chlorophyll *a* had the same results in 2009 and 2013. Phosphorus was predicted not to go over 5 micrograms per litre in more than 20% of Lac de Gras; this level

has only been exceeded twice during ice cover in 2008 and 2013, and never during open water.

Plankton (small plants and animals that live in the water column) are monitored because they are part of the food chain and changes in their population may be seen before any impacts are noted in fish. Since 2007, the amount of plankton has consistently been higher closer to the mine versus farther from the mine. Monitoring has shown that the mine is not having a harmful/toxicological effect on plankton. Changes to the type of plankton are being seen throughout Lac de Gras, suggesting that a natural change is also occurring. The number of small animals in the water (zooplankton) peaked in 2011 and has decreased since then, but has still been greater than the normal range for Lac de Gras since 2007. The amount of phytoplankton (biomass of small plants) was greater than the normal range in more than 20% of the lake in 2009 and 2011.

- Sediment samples showed that 15 metals were deposited onto the lake bottom near the
 mine in greater amounts than are present in areas of the lake farther from the mine. To
 date, the amount of metals present has stayed below the guideline that protects animals
 living in the lake bottom sediments. Concentrations of bismuth, lead and uranium
 increased near the mine from around 2002 to 2008, and it is thought that the construction
 of the dikes may have contributed to this increase. The amount of these metals in
 sediments has remained the same since 2008 and have not exceeded Soil Quality
 Guidelines.
- Benthic invertebrates (bugs such as snails, clams, worms and insects that live in the sediment on the bottom of the lake) are studied because they are food for fish. Since 2008, the number of bugs close to the mine has been higher than areas farther from the mine, but they are within the normal range for the lake. The types of these bugs have changed over the years, but similar to the findings with plankton, a change over time has also been seen in the reference areas and suggests that natural changes occur over time.
- Small (slimy sculpin) and large (lake trout) fish are sampled from Lac de Gras. Small fish are good to sample because they tend to live in one area. Large fish are good to sample because they are the top of the food chain and of value to community members. Results from small fish samples have consistently showed increased levels of lead, strontium and uranium even though water quality levels for these chemicals are not of concern. Outside of this, there have been no consistent trends in differences between small fish close to the mine when compared to those further from the mine. Lake trout flesh samples have shown an increase in mercury concentrations, but this has also been observed in fish from Lac du Sauvage, and other areas in the north. Traditional Knowledge studies have shown that the taste and texture of the fish in Lac de Gras has not changed over the years the mine has been operating.

A weight-of-evidence (refer to Definitions section) uses all of the above information in a quantitative process where professional scientists assess the strength of all the results in determining possible nutrient enrichment or harmful/toxicological impacts from the mine. There was strong evidence for nutrient enrichment and weak evidence for toxicological damage from 2011 to 2013 (Figure 8). The effect of nutrient enrichment in Lac de Gras extends over approximately 20% of the lake, as was predicted in the 1998 Environmental Assessment.

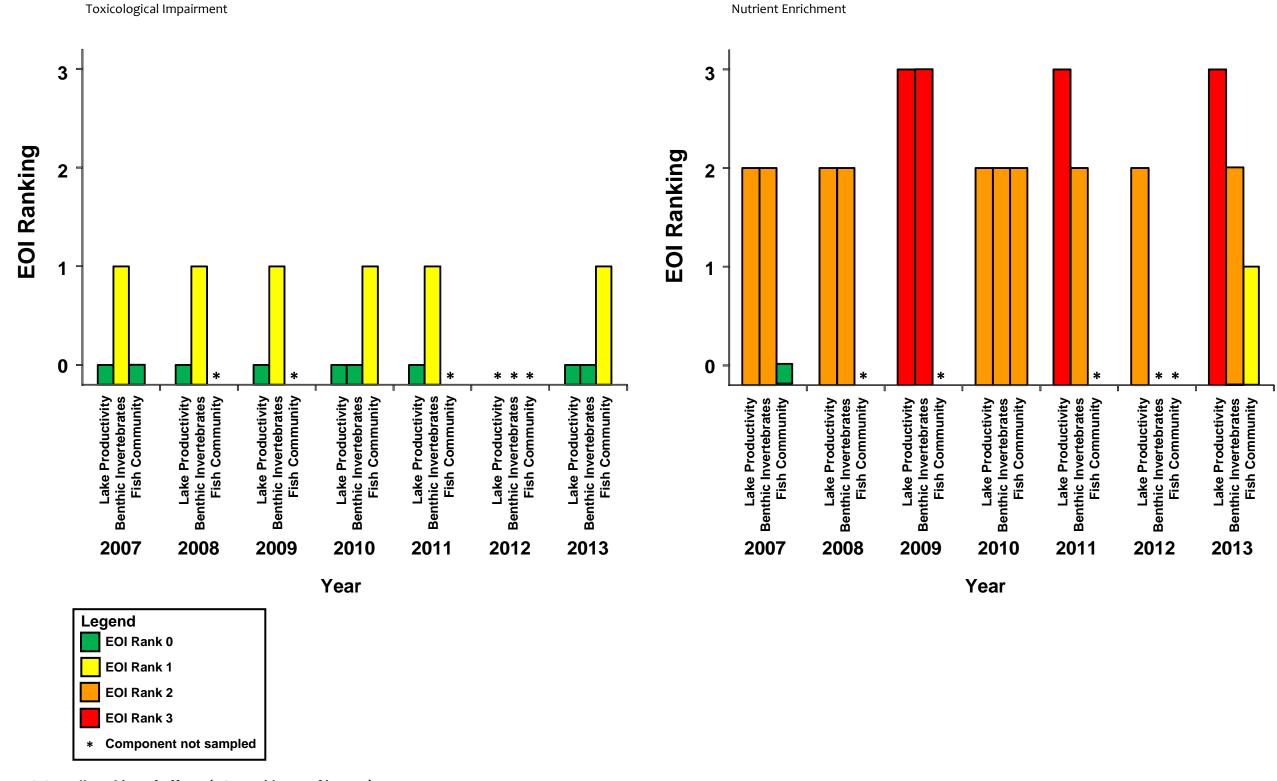


Figure 8 Overall Ranking of Effects (EOI = evidence of impact).

2013 Observations:

Revisions to the Aquatic Effects Monitoring Program design resulted in a more in-depth program being conducted on a 3-year cycle for the AEMP, and 2013 was a year where the majority of sampling requirements for the program were conducted. Overall, the program determined that nutrients (nitrogen and phosphorus) released into Lac de Gras from the treated mine water discharge continue to increase in Lac de Gras, near the East Island.

- Mine effluent had an effect on 15 water quality variables and the amount of chemical in each sample was highest close to the mine and lowered with increasing distance from the mine.
- Results relating to eutrophication indicators (chemicals and small plants that show early signs of increasing nutrients) suggest that the mine is causing an increase in nutrients in Lac de Gras as there were greater concentrations of some nutrients and small plants closer to the mine versus further from the mine. For example, algae (chlorophyll a) concentrations were higher than the normal range for Lac de Gras, and the higher amount of algae was found in over 20% of the lake. The approved AEMP (v3.3) has established an Effects Benchmark for chlorophyll a at a concentration of 4.5 μ g/L; current results are below this value.

The 2013 monitoring results for plankton communities (tiny plants and animals) in Lac de Gras suggest that there is a mine-related increase in nutrients because there was a difference in the amount and type of them in the exposure area (close to the mine) when compared to the reference areas (further from the mine). There was however no evidence of toxicological damage, so no Action Level has been reached.

- Effects of the mine discharge on bottom sediments (mud at the bottom of the lake) in the exposure area of Lac De Gras were evident for 13 metals, as areas near the mine had higher average amounts than those further from the mine. Of these 13 metals, three had average amounts that were higher than what would normally be found in the lake. When comparing these results to sediment quality guidelines, it is unlikely that the amounts found in Lac de Gras sediments would be harmful to fish and plants.
- Differences in the total amount of benthic invertebrates (small bugs that live on the lake bottom) were noted between the exposure area (close to the mine) and reference areas (further from the mine). This suggests an increase in nutrients, rather than a harmful effect, so no Action Level was reached. Benthic invertebrates are measured by density, which means counting the number of animals in a given area.
- The Weight of Evidence assessment is meant to rank impacts to Lac de Gras using the data collected by the AEMP, as summarized in the bullet points above and in the Fish section below. Impacts from different parts of the program (e.g. Fish Health) are rated as being: negligible/none (score of 0), low (1), moderate (2) or strong (3). They are also categorized as either 'toxicological' (harmful response) or 'nutrient enrichment' (increased nutrients).

Table 7: Weight-of-Evidence Results, 2013 AEMP.

Ecosystem Component	Rating						
Toxicological Impairment							
Lake Productivity	0						
Benthic Invertebrates	0						
Fish Population Health	1						
Nutrient Enrichment							
Lake Productivity	3						
Benthic Invertebrates	3						
Fish Population Health	1						

• During 2013, a batch of preservative that is provided by an external lab and added to water samples prior to shipping was found to be contaminated. After investigation, a total of seven metals (cadmium, chromium, cobalt, iron, manganese, molybdenum, and nickel) were found to be in higher concentrations than normal when the contaminated preservative was used, starting in July 2013. Further tests were then done to determine which sample results were incorrect because of this contamination. These seven metals from a total of 114 specific samples (21 samples from 1645-18, 24 samples from 1645-19 and 69 samples from the open water AEMP) were removed from the 2013 AEMP and SNP datasets, and these values were also not used in any analyses.

2012 Observations:

The Aquatic Effects Monitoring Program was successfully revised before the 2012 monitoring season so only certain aspects of water quality and fish monitoring were conducted. Overall, the program determined that nutrients (nitrogen and phosphorus) released into Lac de Gras from the treated mine water discharge are causing some enrichment in Lac de Gras, near the east island. A Traditional Knowledge study on fish and water health was also conducted as part of the AEMP during the summer of 2012.

Specific results of note from the 2012 Aquatic Effects Monitoring Program include:

- The analysis of effluent and water chemistry data collected during the 2012 AEMP field program and from relevant sites from the Water Licence SNP program stations indicated similar trends as observed in 2011, including an increase in arsenic and iron concentrations.
- Results to date of the plankton monitoring program, which examines changes in the amount, number and types of tiny animals (zooplankton) and algae (phytoplankton) that live in the water of Lac de Gras (LDG), indicate a pattern consistent with weak nutrient enrichment from mine effluent.

- Results of the eutrophication indicators component of the AEMP were similar. Based on the measured higher amounts of phytoplankton (chlorophyll *a*) and total phosphorus (TP) in the near field area relative to the reference areas, the observed enrichment effect has been given a "moderate" effect level designation. Zooplankton biomass resulted in a "low" effect level designation. More specifically, the area of the lake that has been affected was 24% of LDG for Chlorophyll *a* and less than 1% for TP in 2012.
- Toxicity testing on the treated mine water that is discharged back to Lac de Gras was done four times in 2012, as part of the SNP program in the Water Licence. No concerns or issues were noted with any of these tests.
- The results from the 2012 TK camp provided feedback on the context and process for sharing Traditional Knowledge as well as on the health of the fish and water in Lac de Gras. Camp participants noted the importance of TK's context, which is situated in, and interconnected with spirituality (e.g., human-animal transformations), codes of conduct (e.g., respect for and obedience of one another), and connection to the land, animals, and ancestors. Customs and practices (e.g., drumming, feeding the fire and water) and stories about the journey-based creation of unique landscape features (e.g., mountains, islands, and waterbodies) underscore this context of TK. So, the importance of the setting in which knowledge is shared and of being respectful to others becomes important to ensure proper transfer of knowledge.
- TK camp participants noted the environmental indicators that they use to assess water quality, such as condition of the shoreline and clarity of the water. Additionally, a tea test was used to assess water quality and participants noted that tea made from water of a poor quality results in film or scum on the surface of the cup. None of the water samples from Lac de Gras had this scum or film and all the samples tasted acceptable to participants.

2011 Observations:

Overall, the 2011 program determined that nutrients (nitrogen and phosphorus) released into Lac de Gras from the treated mine water discharge are causing mild enrichment in the bay east of East Island. Specific results of note from the 2011 Aquatic Effects Monitoring Program include:

- The analysis of effluent and water chemistry data collected during the AEMP field program and from relevant sites from the Water Licence SNP stations continued to show a low level effect on water chemistry in the lake resulting from the mine.
- Analysis of the number and types of small organisms that live on the bottom of the lake (benthic invertebrates) indicated a range of effect terms, from no effect to a high level effect, depending on what was analyzed. Low level or early-warning effects were detected for some species between the reference areas and exposure areas. Effects on total density (amount) and other benthic species density were classified as moderate level. A high level

- effect was found for the amount of one species. Benthic invertebrate monitoring results show effects of mild nutrient enrichment.
- Results to date of a special study to examine changes in amount, number and types of tiny animals (zooplankton) and algae (phytoplankton) that live in the water of Lac de Gras show a pattern consistent with nutrient enrichment from the mine. Based on the measured higher amounts of algae (chlorophyll a) and total phosphorus near the mine versus farther from the mine, this effect remains at a "moderate" level effect designation. Higher zooplankton biomass near the effluent continued to result in a "high" level effects designation.
- Moderate nutrient enrichment from the mine water discharge has been shown for 15.5% of Lac de Gras, based on the amount of algae and phosphorous measured in the lake. This is below the predicted level of 20%.
- Results of the Lake Trout study suggest that there has been a slight increase in mercury in Lake Trout muscle tissue since 2005. This increase is seen in both Lac de Gras and Lac du Sauvage. The increase in mercury from before the mine was built resulted in a low level effect classification.
- A technical analysis confirmed the nutrient enrichment effect and concluded that there continues to be strong evidence for a mild increase in lake productivity, and associated enrichment of the benthic invertebrate community, as a result of nutrient increases in Lac de Gras. There is some evidence suggesting low-level impairment to the small organisms on the bottom of the lake due to contaminant exposure but these findings have a high uncertainty because the link to contaminant exposure is not strong. The slight increases in mercury levels in fish tissue since 1996 have occurred in both Lac de Gras and Lac du Sauvage (upstream from the mine), and it is not likely that the increase is linked to mine operations. Diavik continues to monitor mercury levels in big and small fish in the lake, as well as monitoring for other possible sources of mercury. This helps to try and find out what may cause any increases that do happen and catch any possible issues.

2010 Observations:

Overall, the program determined that nutrients (nitrogen and phosphorus) released into Lac de Gras from the treated mine water discharge are causing mild enrichment in the bay east of East Island. Specific results of note from the 2010 Aquatic Effects Monitoring Program include:

- The analysis of effluent and water chemistry data collected during the AEMP field program and from relevant sites from the Water Licence SNP stations showed a low level effect on water chemistry in the lake resulting from the mine.
- Results of the sediment analysis did not identify conditions that are likely to affect fish, bug or
 plant life in the lake through enrichment or harm. Bismuth and uranium were, however,
 assigned "high level effects" designations as both areas near the mine and at least one halfway

- down the lake had average concentrations greater than the areas farther from the mine. Measured levels of bismuth and uranium are unlikely to pose a risk to fish, bugs, or plant life.
- Analysis of the number and types of small organisms that live on the bottom of the lake (benthic invertebrates) indicated a range of effect terms, from no effect to a moderate level effect, depending on what was analyzed. Low level or early-warning effects were detected based on statistical differences between the reference areas and exposure areas. Effects on total density and other benthic species density were classified as moderate level. Earlywarning/low level effects were detected for the amount, distance, and density of one species. Benthic invertebrate monitoring results are indicative of nutrient enrichment.
- A study was completed in 2010 to determine the approximate area the treated effluent (a "plume") covers in Lac de Gras. The plume extent was similar between summer open-water and winter ice-cover conditions, but concentrations near the discharge point were higher during winter ice-cover conditions.
- One possible explanation for the 2007 finding of elevated mercury in small fish (Slimy Sculpins)
 was increased mercury being released from sediments because of nutrient enrichment from
 the treated mine effluent. A sediment core study was done to look in to this and it showed
 that this explanation was not likely, based on the results.
- Results to date of a special study to examine changes in amount, number and types of tiny animals (zooplankton) and algae (phytoplankton) that live in the water of Lac de Gras indicate a pattern consistent with nutrient enrichment from treated mine effluent. Based on the measured higher amounts of algae (chlorophyll *a*) and total phosphorus near the mine versus farther from the mine, this effect has been given a "moderate" level effect designation. Higher zooplankton biomass near the effluent resulted in a "high" level effects designation.
- Results for the small fish study indicate a pattern consistent with an increased availability of
 food and nutrients in the sampling areas near the mine compared to the areas farther from
 the mine. Despite the moderate-level effects seen in the fish tissue chemistry for bismuth,
 strontium, titanium, and uranium, there was no evidence that tissue metals concentrations
 were negatively affecting fish health.
- Mercury levels in small fish (Slimy Sculpin) at sampling sites near the mine were lower than reported in the 2007 AEMP. There was no significant difference between samples taken near the mine and those taken farther away from the mine in 2010, most importantly in relation to tissue concentrations of mercury. The reason for the differences between the 2007 AEMP results for mercury and the 2010 results is unknown; however, a different analytical laboratory using slightly different methods was used in 2010.
- A technical analysis confirmed the nutrient enrichment effect and concluded that there is strong evidence for a mild increase in lake productivity, and associated enrichment of the benthic invertebrate community and fish community, as a result of nutrient increases in Lac de Gras. There is little evidence of harm to lake productivity as a result of any contaminant

exposure. Although there is some evidence suggesting potential low-level contaminant issues with benthic invertebrate and fish communities, these observations have a relatively high amount of uncertainty.

2009 Observations:

Similar to 2008, the 2009 Aquatic Effects Monitoring Program showed nutrient enrichment (increased levels of phosphorous and nitrogen in the water available for algal growth, where increasing algal growth is a sign of eutrophication, or increased lake productivity) in areas of the lake. Nutrient enrichment is the main change in Lac de Gras that leads to most of the other changes we see relating to the different animals that live in the water. Specific observations that were noticed in the 2009 data include:

- The analysis of effluent (treated water discharged back in to the lake) and water chemistry (quality) data collected during the 2009 AEMP field program and from relevant stations from the Water Licence Surveillance Network Program stations indicated an early warning/low level effect on water chemistry within Lac de Gras resulting from the Mine. This means that there is a difference between samples taken near the mine and those taken farther away from the mine, but is within the expected range. Some values may be slowly increasing over time, though, so it is important to monitor for any changes that may occur from one year to the next.
- Results of the sediment analysis did not identify conditions that are likely to affect aquatic life through enrichment or impairment. Most of the metals and nutrients measured in the sediment had an early warning/low level effect on sediment chemistry. However, bismuth was assigned a "high level effect" designation; this means that samples near the mine and at least one sample part way across the lake had average concentrations that were higher than those of the reference area at the other end of the lake.
- Analysis of the number and types of benthic invertebrates (small organisms that live on the bottom of the lake) indicated a range of effect designations, from no effect to a high level effect, depending on what was analyzed. Low level/early warning effects were detected based on significant differences between the reference areas further from the mine and the exposure areas near the mine in eight of twelve benthic invertebrate community variables compared (variables include things like the number of species found, whether one species was found more than another, number of organisms in a given area, number of midges, etc.). Total invertebrate densities, as well as two species densities (Pisidiidae and Heterotrissocladius sp.) were higher closer to the mine than the range measured in areas farther from the mine. Densities of Pisidiidae near the mine and part way across the lake were greater than the range measured in areas at the other end of the lake; for that reason, it was assigned a high level effect. These results relate back to the nutrient enrichment happening in the lake.
- Findings to date on a special study to examine changes in amount, number, and types of zooplankton (tiny animals) and phytoplankton (algae) that live in the water of Lac de Gras show a pattern linked to nutrient enrichment from mine effluent. Because there are higher

amounts of phytoplankton (chlorophyll a/algae) and total phosphorus in areas near the mine compared with areas farther from the mine, this effect has been given a "moderate" level effect designation. Higher zooplankton biomass (the amount of small animals in an area) near the effluent resulted in an early warning/low level effect designation; this means that there is a difference between the areas closer to and further from the mine, but that it is within the expected range.

- A weight-of-evidence (WOE) analysis compares all the information collected (water quality, sediment quality, benthic invertebrates, etc.) to try and answer two questions:
 - Could damage to aquatic animals happen due to chemical contaminants (primarily metals)
 released to Lac de Gras?
 - Could enrichment occur in the lake because of the release of nutrients (phosphorus and nitrogen) from treated mine effluent?

The weight-of-evidence analysis confirmed nutrient enrichment and concluded that there is strong evidence for a mild increase in lake productivity due to nutrient enrichment. There was not a lot of evidence of damage to aquatic animals as a result of contaminant exposure. The observation of potential low-level harm of the benthic invertebrate community has a fairly high amount of uncertainty.

2008 Observations:

Overall, the 2008 Aquatic Effects Monitoring Program determined that nutrients (nitrogen and phosphorus) released into Lac de Gras from the treated mine water discharge are causing mild nutrient enrichment in the bay east of East Island. Nutrients are essential to the growth of plants and animals in land and in the water. Adding nutrients to natural waters can result in increased production of plants or algae. Too many nutrients can cause environmental problems generally known as nutrient enrichment or eutrophication. These problems include increased oxygen consumption in the water by algae (fish need this oxygen too) and a reduction in the amount of light getting to plants at the bottom of the water body.

Special Effects Studies for mercury detection limits (measuring mercury at very low levels), chromium VI (a compound Diavik investigated because it could be a concern at lower levels compared to other forms of chromium) and trout fish tissue metals levels (based on previous AEMP studies that showed possible elevated level of metals in fish) were also completed. Other results of note from the 2008 Aquatic Effects Monitoring Program include:

- The analysis of effluent and water chemistry data collected during the 2008 AEMP field program and from locations around the mine site (from Surveillance Network Program) indicated a low level effect on water chemistry within Lac de Gras resulting from the mine.
- Results of the sediment analysis did not identify conditions that are likely to affect aquatic life through enrichment or impairment. Bismuth and uranium (metals) were however assigned "high level effects" designation as both near-field and at least one mid field area

- had mean (average) concentrations greater than the reference area (sites far away from the mine) range.
- Analysis of the number and types of small organisms that live on the bottom of the lake (benthic invertebrates) indicated a range of effect designations, from no effect to a high level effect, depending on the variable analyzed. Low level or early warning effects were detected based on differences between the reference areas (far away from the mine) and exposure areas (near the mine) in eight of eleven benthic invertebrate community variables compared. Density (number of individuals in a specified area) of the midge Procladius in the near-field area were greater than the range measured in the reference areas and was assigned a moderate level effect. Density of Sphaeriidae in the near-field and mid field areas greater than the range measured in the reference areas and was assigned a high level effect. Both results are indicative of nutrient enrichment.
- The fish liver tissue analyses from 1996, 2005, and 2008 has not indicated that there has been an increase in the concentration of metals, including mercury, in lake trout over that period and therefore a no effect classification has been assigned for lake trout usability.
- Findings to date on a special study to examine changes in amount, number and types of tiny animals (zooplankton) and algae (phytoplankton) that live in the water of Lac de Gras indicate a pattern consistent with nutrient enrichment from mine effluent. Based on the measured higher amounts of phytoplankton (chlorophyll a) and total phosphorus in the near field areas compared with the reference areas this effect has been given a "moderate" level effect designation. Higher zooplankton biomass near the effluent resulted in a "high" level effects designation.
- Mercury and chromium VI levels in the treated mine water discharge, both subject of special studies in 2008, were determined to be at concentrations below the best analytical detection limits available.
- The AEMP confirmed that there is a nutrient enrichment effect and concluded that there is strong evidence for a mild increase in lake productivity due to nutrient enrichment. There is negligible evidence of impairment to lake productivity as a result of any contaminant exposure. The observation of potential low-level impairment of the benthic invertebrate community has a relatively high degree of uncertainty.

Special studies on dust sampling frequency, mercury detection limits, and chromium VI are now complete.

2007 Observations:

- Effluent and water chemistry data collected indicated a low-level effect on water chemistry within Lac de Gras from the mine.
- Lakebed sediment chemistry data indicated a potential low-level effect for lead, and a potential high level effect for bismuth and uranium on sediment chemistry within Lac de

Gras from mine activities, although benthic results suggest that sediment exposure concentrations are unlikely to pose risk to aquatic life.

- Benthic invertebrate analyses indicate a low-level nutrient enrichment effect on benthic invertebrates within Lac de Gras.
- The fish study indicated a pattern consistent with an increased availability of food and nutrients in near-field and far-field exposure areas compared to far-field reference areas.
 Elevated barium, strontium, mercury and uranium in slimy sculpin was assigned a moderate-level effect.
- Dike monitoring results revealed potential dike-related minor changes to water quality and concentrations of lead and uranium in sediment. Overall, analyses suggest benthic communities near the dikes are more likely responding to habitat variation than to changes in water quality or sediment chemistry.
- Eutrophication indicators showed a moderate-level nutrient enrichment effect within Lac de Gras, with the mine being a significant contributor to this effect.
- As with the previous year's results, despite the proximity of SNP Station 1645-19 to the effluent diffuser (6om), open-water and ice-cover water quality results remain within Canadian Council of Ministers for the Environment (CCME) Guidelines for the Protection of Aquatic Life.
- Ice-cover concentrations at SNP Station 1645-19 still tend to be higher and more variable than open-water concentrations. This is likely a result of increased wind driven lake circulation in the open-water, resulting in better initial dilution or mixing.

2005/2006 Observations:

Due to pending changes to the AEMP, data reports were completed for the 2005 and 2006 programs, however, a report of the analysis and interpretation was not submitted.

2004 Observations:

- As with the previous year's results, despite the very close (6om) proximity of SNP Station 1645-19 to the effluent diffuser, open-water and ice-cover water quality results remain within Canadian Council of Ministers for the Environment (CCME) Guidelines for the Protection of Aquatic Life.
- Ice-cover concentrations at SNP Station 1645-19 still tend to be higher and more variable than open-water concentrations. This is likely a result of increased wind driven lake circulation in the open-water, resulting in better initial dilution or mixing.
- As with the previous year, the results for several of the parameters indicated a possible change when the actual reason for the positive results was a low baseline statistic. There are also locations (LDG50) or parameters (nitrite at LDG46) where baseline data are not available and so the data analysis is not possible. Finally there are parameters where

baseline detection limits have dominated the baseline statistic and could result in changes not being detected.

2003 Observations:

- Despite the very close (60m) proximity of SNP Station 1645-19 to the effluent diffuser, open-water and ice-cover results remain within CCME Guidelines for the protection of aquatic life.
- Ice-cover concentrations at SNP Station 1645-19 tend to be higher and more variable than open-water concentrations. This is likely a result of increased wind driven lake circulation in the open-water resulting in better initial dilution or mixing.
- The results for several of the parameters indicated a possible change when the actual reason for the positive results was a low baseline statistic. There are also locations (LDG50) or parameters (nitrite at LDG46) where baseline data are not available and so the data analysis is not possible. It is therefore recommended that in the future the data analysis method be modified so that the baseline references are from the combined midfield and far field sites instead of each individual monitoring site. This change would reduce the number of false positives results.

2002 Observations:

- Water quality at all Lac de Gras monitoring locations, including sites immediately adjacent to effluent diffuser remained high.
- Increases from location specific baseline levels were measured for turbidity and suspended solids at 3 mid-field monitoring stations, however all remained within typical baseline values for the area.
- Predicted nutrient enrichment effects were not realized although phytoplankton biomass
 was determined to have increased over baseline at one far-field location but not at any
 mid-field locations.
- No trends or specific concerns were noted for zooplankton, benthic invertebrates and sediment quality, based on two sampling results.
- Snow chemistry results were all below discharge limits.

Previous Years Observations:

- Localized increases in turbidity, suspended solids and aluminum were measured due to dike construction.
- Water and sediment quality, zooplankton, phytoplankton and benthic invertebrate results
 were generally consistent with baseline, however some results, particularly benthic
 invertebrate numbers, showed larger year-to-year variability.

What effect will the mine development have on fish?

EA Prediction and Overall Status:

 On a regional scale the only effect on the fish population of Lac de Gras would be due to angling;

Fish populations do not appear to have been impacted by mine operations.

• The effect of increases in metal concentrations in fish flesh would be negligible (i.e. metal concentrations in fish flesh would not exceed consumption guidelines (0.500 mg/kg for mercury);

Since baseline, eleven (11) lake trout tissue samples have exceeded the .500 mg/kg for mercury and all were large fish (mercury is known to increase over time). An increased amount of mercury was detected in tissue from small fish (slimy sculpin) taken from the lake in 2007 but levels since then have remained normal.

• Mercury concentrations will not increase above the existing average background concentration of 0.182 mg/kg; and,

The average mercury concentration in lake trout caught from Lac de Gras has increased above background concentrations of 0.182 mg/kg (year 1999 baseline) in some years but overall concentrations have not significantly increased in the last 24 years. Mercury in lake trout is naturally occurring as the Mine is not a source of mercury input to Lac de Gras. In general, larger and older fish naturally have increased mercury concentrations as mercury bio accumulates in fish tissue. The instances of fish caught with mercury levels above baseline are likely a combined result of aging fish populations, and the bioaccumulation (builds up in tissue) and biomagnification (levels increase up the food chain) effects of mercury.

• Local effects due to blasting, suspended and settled sediment from dike construction, increase in metal concentrations around dikes and post-closure runoff.

Effects due to blasting and construction were minimal based on monitoring and research results; post-closure runoff cannot yet be assessed.

Observations:

AEMP TK Study of Fish Health

Traditional knowledge studies component of the Aquatic Effects Monitoring Program (AEMP) did not take place in 2020; however, the results of both the fish inspection and water tests for the 2018 AEMP Traditional Knowledge (TK) Study found that the scientific analysis supported observations made by TK holders that the present status of the fish and water in Lac de Gras is good. People appreciated experiencing the current state of the environment personally and evaluating both water and fish "with their own eyes". Elder and youth participants from each of the five (5) PA organizations acknowledged that it is also important to pair TK with science so that all aspects of the environment

can be understood to its full potential. Participants acknowledged Diavik's efforts to keep the fish and water healthy and expressed interest in seeing this monitoring camp continue into the future. The AEMP TK study includes up to 2 Elders, 1 youth and interpretation as required for each of the PA organizations and is conducted every three (3) years, with the next program planned for 2021.

In 2018, a total of 36 fish were caught from two locations (35 lake trout, 1 lake whitefish). When evaluating the fish during processing, people generally described the fish as healthy with typical gills, tissue, skin, scales, hearts, livers, pipes, eggs. Camp participants tasted four lake trout that they baked, boiled, fried, and grilled. The descriptions provided on the taste of each fish were positive and included: good, very good, healthy and typical. However, compared to previous years, participants suggested that the number of fish with cysts and worms (parasites) appeared to have increased. While some people recognized that parasites occur naturally and are present in fish within their communities, there was still an interest in trying to understand why fish in 2018 appeared to have more cysts than expected. During the Verification Session in December, results of documented cysts from previous years were compared with 2018 and did not show an increase. To date, systematic documentation of cyst presence was not done consistently; however, henceforth, more care will be given to tracking this indicator.

Camp participants reasoned that water quality was good by virtue of observing water clarity, movement, temperature, vegetation, fish activity and taste. Two sampling locations were selected, one near the lakeshore and another in deeper water, and tasting was carried out with consensus that the water is healthy. When asked, participants responded that they do not have any concerns or worries about water in Lac de Gras at this time.

Scientific samples to test for mercury in fish tissue were taken and results were compared against the Health Canada consumption guideline of 0.500 mg/kg of mercury in the edible portion of fish tissue (http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/contaminants-guidelines-directives-eng.php); no samples exceeded this value during 2018 (Figure 8)

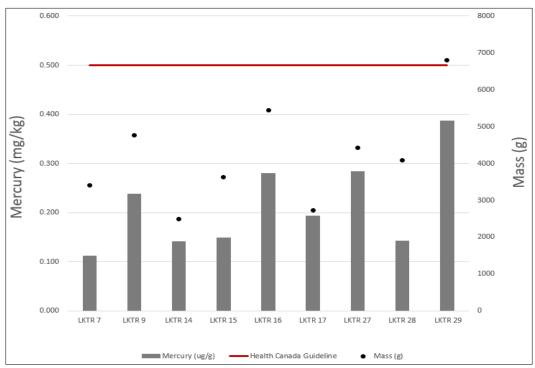


Figure 8 2018 Lake Trout mercury levels (Hg), age, and weight.

- Overall, participants in the 2015 AEMP TK Study commented that the present status of the fish and water in Lac de Gras beside the Diavik mine is good and better than they expected given how close it is to industrial activity.
- In 2015, a total of 31 fish were caught and 20 were Lake Trout while 9 were Whitefish (lake and round). Eight (8) fish were selected for inspection using TK and science. Of all the fish caught, only one fish was considered 'sickly' by participants due to its heart being smaller than usual and the presence of cysts on its liver. Participants chose to include this fish as part of the fish tasting. Four fish were officially tasted for the palatability study and all scored a 1 or 2 rating (i.e. this fish tastes excellent (1)/good (2) and tastes better (1)/similar (2) to fish we usually eat).
- Scientific samples to test for mercury in fish tissue were taken for 21 fish. Results were compared against the Health Canada consumption guideline of 0.500 mg/kg of mercury in the edible portion of fish tissue (http://www.hc-sc.gc.ca/fn-an/securit/chem-chim/contaminants-guidelines-directives-eng.php). Two fish slightly exceeded this value; both were large (over 4 kg), old (33 and 28 years) fish and mercury is known to increase in the body over time (Figure 9).

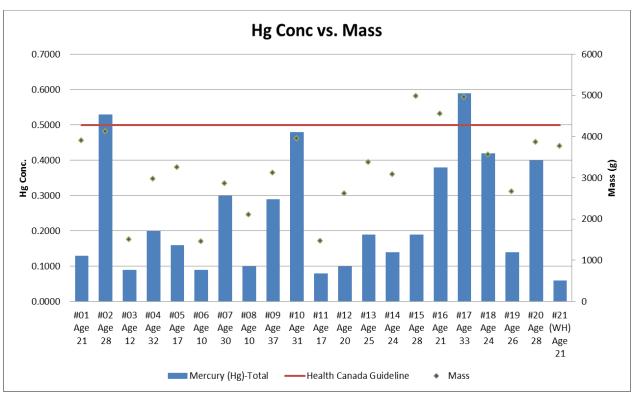


Figure 9 2015 mercury (Hg) levels for fish tissue based on age and weight.

Participants from the 2012 Traditional Knowledge fish camp, conducted as part of the AEMP, noted that the status of the fish in Lac de Gras near the Diavik mine is good. Thirty-nine fish were caught and, of these, two fish were identified as being of poorer condition, noting that these fish were skinny and, in the case of one, had a larger head. Another fish was also observed as having some intestinal worms and was of poorer condition. Participants noted that this tends to occur in all fish populations and that the fish are not eaten. Those that were tasted as part of the palatability study resulted in scores of 1 (excellent for eating, looks better than fish usually caught) or 2 (good for eating, looks similar to fish usually caught) from all participants.

• Based on the results of the 2008 trout survey, it was determined that mercury levels were safe for consumption so a fish palatability study was done in 2009. Four fish were cooked for tasting using the same methods as previous studies, and 10 fish tissue and organ samples were taken for metals testing, including mercury. Each of the four fish that were cooked for the palatability study also had metals samples submitted for testing. Results for the metals levels in the fish tested during the 2009 fish palatability study showed mercury levels below Health Canada's guideline for consumption and that fish were okay for eating.

From 2003 until present, the fish from Lac de Gras (LDG) have tasted good according to participants in the community-based monitoring camps that are held in some summers. Scientific testing for metals levels in fish tissue and organs that were caught during these camps were also as expected the results have showed no concerns.

M-lakes and West Island Fish Habitat Restoration

These programs were started in 2009 in order to make up for the fish habitat lost to dike/pit construction. This is a requirement from the Department of Fisheries and Oceans. Streams in these areas were improved to encourage fish use and movement between smaller inland lakes and Lac de Gras. Construction was finished in 2012 and monitoring of these areas continued through 2013. Some retrofits were completed after the first year of monitoring, as one type of flow structure created was ineffective in sustaining a suitable depth and was not being used by fish. After these were re-sloped and some additional boulders were added, flows and depths became suitable to support fish use and fish were detected in these streams.

Slimy Sculpin

• Small fish (slimy sculpin) sampled in 2019 in Lac de Gras were healthy and showed similar reproductive success and presence of internal and external abnormalities as in the 2016 fish sampling program. The presence of parasites, specifically tapeworms, varied at in different parts of the lake, but was not associated with closeness of fish sampling area to the Mine. Average values of all examined variables (signs) of fish health were within normal levels. There were observed differences in length, weight and relative liver size of juvenile fish between the sampling locations closer to the Mine and reference areas (where Mine activities are not likely to be able to result in an impact), which may be a sign of a toxicological response as defined under the Action Level assessment and triggered Action Level 2 in 2019. Factors contributing to similar effects in 2016 were determined to be inconsistent with a Mine effect, and were likely

as a result of localized habitat variation among study areas in Lac de Gras. Fish tissue concentrations of molybdenum, silver, strontium and uranium in the sampling locations near the Mine (near-field areas) were significantly greater when compared to the sampling areas further from the Mine (far-field areas), and exceeded normal levels in samples collected from areas closer to the Mine; however, concentrations of these metals have remained relatively stable since 2013, with the exception of molybdenum which exhibited an increase of 34%.

- Small fish (slimy sculpin) sampled in 2016 were healthy, with few irregularities. Body condition and liver size were similar throughout the lake. All sizes of fish were captured in each area, which shows that reproduction is successfully occurring. Parasites (i.e., tapeworms) were common in each study area, but more prevalent in the fish caught closer to the mine. Average values of all measured fish health variables were within normal levels. Fish closer to the mine were 9% to 29% shorter and lighter than fish caught in areas further from the mine. Differences in habitat (i.e., water temperature, lake bottom sediments) or the difference in numbers of parasites between sampling areas in 2016 may account for, or contribute to, the difference in the size of fish between the areas closer to and further from the mine in 2016. Concentrations of some metals, such as molybdenum, strontium, and uranium, bismuth and tin, as well as calcium and phosphorous, were higher in areas closer to the mine and in the vicinity of A21 construction. These differences found in fish size may be a response to the chemicals present in fish flesh closer to the mine and as such, they triggered an Action Level response to investigate the cause and confirm the effect. Results of the fish health study seemed as though they could be the result of possible contamination; however, these were considered low-level and there was a lack of contamination in the small plants, animals and bugs, which would be expected to occur before effects are noticed in fish. The fish health responses for 2016 could represent normal changes that can occur within the lake, or they could be caused by other biological or physical factors.
- These small fish were sampled in 2013. Differences in the body size (length and weight) of the fish, as well as the condition factor (how 'fat' the fish is, or length in relation to weight), relative liver size, and relative gonad size were observed in fish caught near the mine compared to those in areas further from the mine. This demonstrates a potential toxicological response (a reaction to exposure). These observations are not consistent with the results of previous fish surveys in Lac de Gras or with the other findings of the AEMP that all indicated a nutrient enrichment response. Overall, the fish data indicate that an Action Level 1 (confirm the effect) has been reached, which means this study will be repeated in 2016.
- The small-bodied (slimy sculpin) fish survey was also done in 2010. Results showed that there was some change to size and condition of the fish that would be consistent with nutrient enrichment (more availability of food and nutrients); this was found closer to the mine. There were some metals in the fish tissue that could have a moderate effect on fish, but there did not appear to be any impacts to fish health. Mercury levels in the fish tissue were lower than

previously reported in 2007 and were within the expected range. A different lab was used to analyze the tissue samples, but the reason for the differences between the 2007 and 2010 studies is not known.

• An increased amount of mercury was detected in tissue from small fish (slimy sculpin) taken from the lake in 2007.

Lake Trout and Mercury

- A large-bodied fish tissue sample program was done on Lake Trout between 29 July and 10 August 2014 in Lac de Gras and Lac du Sauvage (LDS). Samples were taken using a non-lethal technique, and fish were also aged and weight and length of each were recorded. Except for one fish from LDS, all sample results, were below the Health Canada guideline of 0.50 mg/kg. Based on the amount of mercury in fish in 2014, Lake Trout in LDG and LDS would not be expected to have health concerns or pose a risk to human health.
- A large-bodied (lake trout) fish survey was done in 2011 to test mercury levels in fish. The results from this study showed that mercury levels are increasing slightly in both Lac de Gras and Lac du Sauvage. The average mercury concentration in lake trout from Lac de Gras was similar to that found during 2008. This number is a length-adjusted number because mercury concentrations increase with size and age. The lake trout in Lac du Sauvage were found to have average mercury concentrations higher than those found during 2008; this lake is upstream from Diavik. A low-level effect was given for fish mercury levels, though it doesn't appear to be linked to the mine.
- A special study was conducted in 2009 as a joint research program with Fisheries and Oceans Canada (DFO) to assist in understanding if mercury in the slimy sculpin tissue (identified in 2007) is related to the treated mine water discharge. Results from this study did not support the idea that higher levels of mercury may be because of increased mercury being released from sediments due to nutrient enrichment from the treated mine effluent.
- In 2008, Diavik conducted a study to further evaluate the elevated mercury in fish tissue, this time studying large-bodied fish (lake trout). The fish liver tissue analyses indicated that there is no concern relating to the concentration of metals, including mercury, in lake trout, but that some very large/old fish did show higher levels of mercury than smaller fish, as can be expected. A mercury study was also completed on treated mine water discharge and determined that concentrations are below the best analytical detection limits available.

Global concern over mercury levels has increased due to human activity and industrial processes. Increased levels have been noted in the past in small fish in Lac de Gras (Diavik 2007), as well as in other lakes located throughout the Northwest Territories (http://www.hss.gov.nt.ca/health/environment-and-your-health/mercury-levels-fish).

Other

In 2014 and 2015, a study was also done to see if big fish like Lake Trout move between Lac de Gras and Lac du Sauvage, as it was unclear if LDS could be used as a reference lake for the mercury monitoring program. To do this, 126 Lake Trout (120 from LDG and 20 from LDS) were tagged with a transponder to track their movement. Over the course of one year, 29 fish (23%) travelled between the two lakes by using the Narrows. The majority of the fish that moved between lakes were originally tagged near the Narrows, but nine of the fish travelled greater distances of up to 20 km away. Of the 29 fish that moved between lakes, 4 were detected only once, and the remaining 25 were detected multiple times. One fish was tagged moving between the two lakes 128 times.

Fish habitat utilization studies showed that lake trout continue to use both natural and man-made shoals near the A154 dike.

A Blasting Effects Study was done starting in 2003 and showed no effects on fish eggs.

Since 2000, no fish have been taken by recreational fishing from Lac de Gras by Diavik.

Other observations made include:

Sediment deposition rates measured during the construction of the dikes were below levels predicted in the Environmental Assessment.

In 2002, 2526 fish were salvaged from inside the A154 dike pool and released in Lac de Gras. 526 fish were salvaged from the North Inlet and released to Lac de Gras.

In 2006, 725 fish were salvaged from inside the A418 dike pool and released in Lac de Gras.

In 2017, 309 fish were salvaged from inside the A21 dike pool and released in Lac de Gras. Of the 309 fish captured, 148 fish were transferred and released into Lac de Gras. In total, 16.7 kg of fish were sacrificed and frozen for distribution to local communities, with 30 kg of fish transferred live into Lac de Gras.

Runoff and Seepage

There are locations where intercepted water and runoff are monitored at the Diavik mine site. There were historically 22 stations that included: 7 survey stations, 5 groundwater monitoring stations and 10 collection ponds. In 2013, 4 groundwater and all 7 survey stations were discontinued. Working with the WLWB, Diavik's program was changed in 2013, 2018 and 2019 to include the following monitoring locations, as identified in Figure 4:

- 2 freshet surface runoff locations;
- 1 groundwater well;
- 1 sump;
- 4 interception wells (within the PKCF dams);
- 10 collection ponds; and
- 7 A-Portal misclassified waste rock potential seepage monitoring locations.

Runoff is monitored and managed by DDMI staff and the Inspector is kept informed of any seepage issues, as well as the short- and long-term plans for monitoring and repairs. Seepage inspections are

conducted weekly for site infrastructure to identify any potential seepage that may occur outside of, or from, storage and containment structures. These include the Waste Rock Storage Areas, water retention dikes and dams, as well as other rock stockpiles and areas constructed with mine/quarried rock.

In July 2020, after a 1:100-year heavy rainfall event, flow was observed from the base of the WRSA-SCRP to a small interior lake over the course of 14 days and flowing water was observed at Seepage Location 6 (one of the 7 seepage monitoring locations of misclassified waste rock) for 3 days. All results from the WRSA-SCRP overflow were below maximum average EQCs and were also nontoxic to fish. Seepage Location 6 is located at the edge of the A21 pit and as a result of the topography of this location, the water reported to the A21 pit sump and there was no impact to the receiving environment.

No seepage has been seen downstream or outside of runoff collection areas since 2013, as the upstream interception systems successfully captured and diverted any runoff. Five (5) seepage samples were taken during 2012.

Results of DDMI runoff and seepage monitoring are summarized annually in a Seepage Survey Report submitted to the WLWB on March 31 every year.

Water Quantity

What effect will the mine development have on water quantity?

EA Prediction and Overall Status:

 Water supply to the mine is not limited and use of the resource will not cause changes in water levels and discharges from Lac de Gras beyond the range of natural variability.

Monitoring and modelling results have not shown a significant change in water levels or discharges from Lac de Gras.

Observations:

The figure below shows the purpose and amounts of fresh water used from 2000 to 2020 (Figure 10). Diavik recycles water from the PKC and North Inlet as much as possible in order to reduce the amount of fresh water needed; in 2020, this amounted to 2.8 million m³ of recycled water. The Water Licence allows Diavik to use a total of 1.28 million m³ of Lac de Gras water per year; Diavik has always remained well below this amount and only used 987,447 m³ in 2020. Use of water from Lac de Gras by Diavik is not causing changes in water levels beyond natural variability. Further information can be obtained from the Water Management Plan.

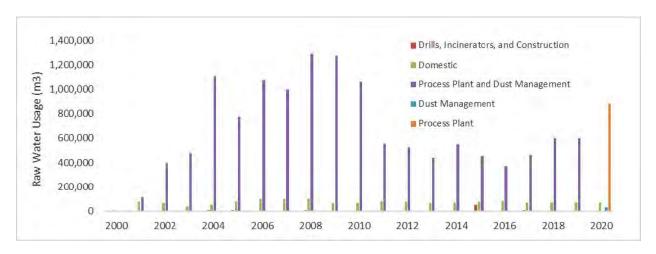


Figure 10 Freshwater use volumes from 2000-2020.

Climate and Air Quality

Will the mine development affect air quality around Lac de Gras?

EA Predictions and Overall Status:

• Ambient air quality objectives will not be exceeded; and

Dustfall levels were higher than originally predicted during open pit mining but have remained below Alberta and British Columbia (used for comparison) and TSP levels generally remained below NWT Guidelines from 2013-2018 when TSP levels were monitored and reported at Diavik.

• The mine will be a very minor greenhouse gas emission contributor to Canada's total emissions.

Emissions are tracked and reported; levels remain relatively stable across years.

Observations:

As predicted, dust deposition decreases as one moves away from the mine. The rate of dust being deposited is affected by activities at the mine (for example, higher dust deposition is typically measured at the airport compared to the west part of East Island where there is very little activity) as well as by wind direction (because wind carries the dust). These trends have been measured each year since dust monitoring began in 2001. Dust suppressants were investigated for use on the airstrip, but the small runway size and nearness to the lake have prevented the safe use of such chemicals. Suppressants are used on the helipad, taxiway, parking lot and apron areas.

Total Suspended Particulates (TSP)

In 2019, DDMI determined that continued TSP monitoring is not a valuable component of the air quality monitoring initiatives at the Diavik mine. Results have not proven useful in developing adaptive management strategies for improving air quality at the site. In addition, equipment reliability issues have required significant on-site and off-site maintenance programs that have impeded their availability and caused strain on Environment department resources. For the reasons noted above, DDMI has elected to discontinue TSP monitoring. DDMI would like to emphasize that it will still be continuing all remaining components of the EAQMMP that track items of community concern while continuing to provide valuable data that is utilized in the adaptive management of air quality on site; the EAQMMP Version 2 reflects these commitments. In addition, DDMI's ongoing Aquatic Effects Monitoring Program (AEMP) enables the monitoring and assessment of the effects of accumulation of project-related dust and air emissions on aquatic receptors.

In July 2020, EMAB initiated a Ministerial investigation on the discontinuation of TSP monitoring at Diavik. The GNWT-ENR's investigation is ongoing.

• During 2012, a revised air quality modeling and monitoring approach was used to update the prediction of deposition rates from the EA. An Air Quality Monitoring Program was finalized

and implemented as part of this process and included two TSP monitoring stations; one located by the Communications building and the other on the A154 dike (Figure 11).

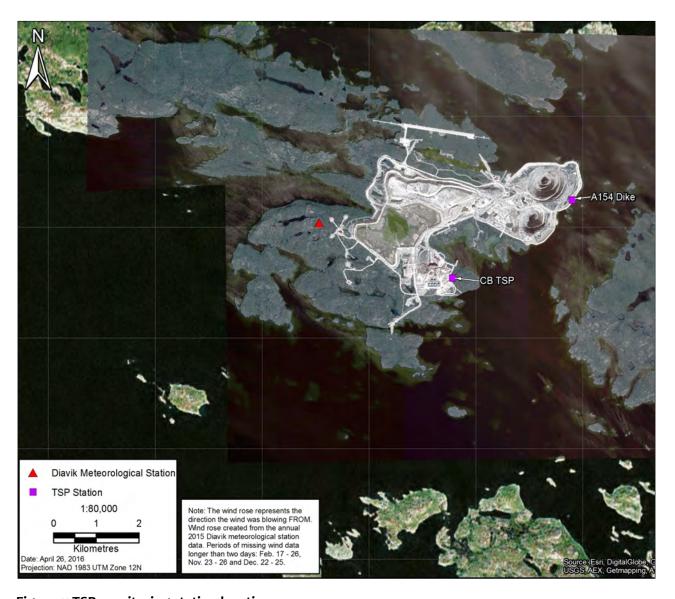


Figure 11 TSP monitoring station locations.

• From January to December 2018, TSP was measured at the Communications Building (CB) station. The TSP monitoring at A154 Dike station was suspended in 2018 due to issues with the equipment. There was no exceedance of the Government of the Northwest Territories (GNWT) 24-hour average TSP guideline (120 μ g/m³) at the CB station (see Figure 12). The maximum daily average value was 23.2 μ g/m³, and the minimum value was 0.3 μ g/m³. The 2018 annual average TSP concentration at the CB station was 3.6 μ g/m³ and was well below the annual GNWT standard (60 μ g/m³). TSP monitoring at the CB station had valid daily data for 86% of the days in 2018 (314 valid daily data out of 365).

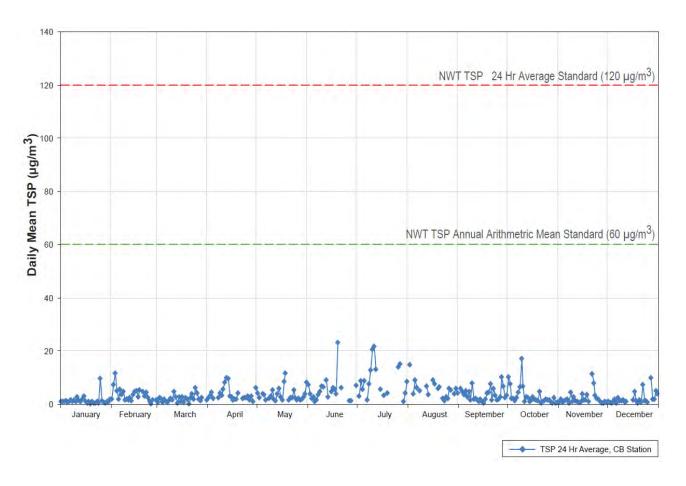


Figure 12 2018 Communication Building daily average TSP amounts.

- From January to October 2017, TSP stations had valid daily data for 71% and 69% of days at the communications building and A154 Dike stations, respectively. TSP levels at the communications building remained below the GNWT Department of Environment and Natural Resources (GNWT-ENR) 24-hr standard of 120 micrograms per cubic meter (μg/m³), and 4 samples were above the 60 μg/m³ annual standard (Figure 13). From January to October 2017, samples from the A154 station showed one sample above the 24-hr standard and 4 above the annual standard (Figure 14). Elevated TSP concentrations were measured by both stations from August 13 to 15 as forest fire smoke was observed at the Mine site on these dates. The 2017 results agree with Diavik's prediction that there would be up to two (2) exceedances of the 24-hr standard per year.
- There was one high reading (120 μg/m³) above the 24-hr standard during 2016, though the TSP monitoring station on the A154 dike was not working for 10 months of that year. During 2014 and 2015, TSP readings did not exceed the GNWT -ENR standard of 60 μg/m³, and there was only one daily exceedance of the 24-hour standard at the Communications building. The 2016 results agree with Diavik's prediction that there would be up to two (2) 24-hour exceedances per year.

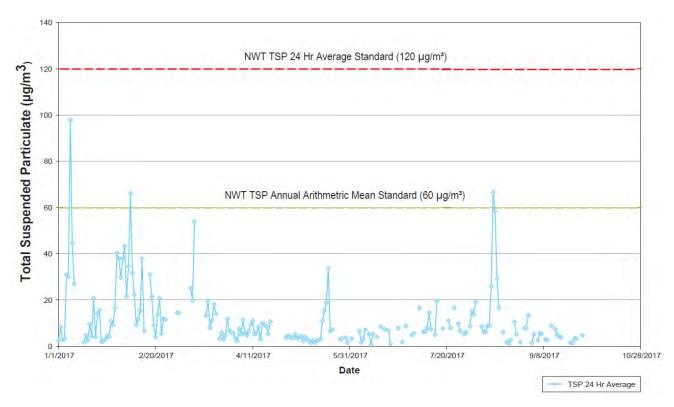


Figure 13 2017 Communication Building annual 24-hr TSP amounts.

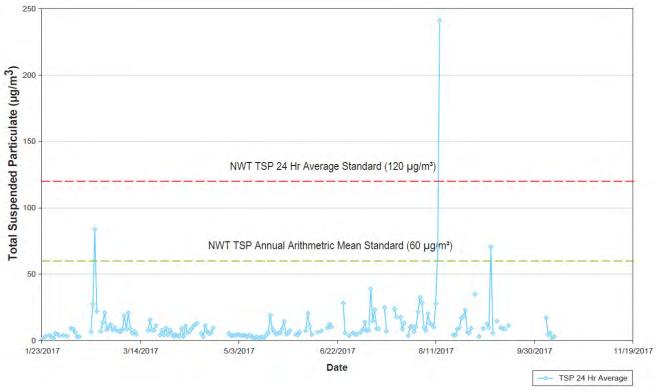


Figure 14 2017 A154 Dike annual 24-hr TSP amounts.

• Even with the monitoring stations being located on the mine site, all TSP values measured during 2013 were below the GNWT Ambient Air Quality Guideline, save for one day in December 2013 that was thought to be due to snow clogging the sensor, and the results agreed with DDMI's updated dispersion model predictions completed in 2012.

Dust Gauges

In 2020, dustfall rates were comparable to, but slightly lower than 2019 rates. The dustfall rates in 2020 were higher than years before 2018, when the A21 pit was not open. Dustfall values at all stations in 2020 were below the upper limit of the Alberta Ambient Air Quality Objectives and Guideline for dustfall (1,924 mg/dm²/y) applied to commercial and industrial areas. There are no dustfall standards or objectives for the Northwest Territories.

- The dustfall rates estimated from dustfall gauges in 2019 were comparable to the 2018 rates, which were the highest recorded since 2008. The higher recorded dustfall values in both 2018 and 2019 suggest that dustfall rates in these two years were likely influenced by the surface activity at the Mine, particularly at the A21 open pit. The 2019 annualized dustfall rates estimated from gauges at all stations were below the upper limit of the Alberta Ambient Air Quality Objectives and Guideline for dustfall (1,924 mg/dm2/y).
- In 2018, dustfall values remained lower than the former British Columbia dustfall objective for the mining industry (BC MOE 2016) except at the four sites that recorded the highest dustfall rates in 2018 (i.e., Dust 3, 7, 10, and 1). Dust deposition rates in 2018 were the highest since 2008 at some locations. The higher dustfall rates were likely due to the surface activity at the Mine,

- particularly the A21 open pit, which began active mining in December 2017. Deposition rates were highest close to the Mine and decreased with distance from the Mine.
- Comparisons of mean and maximum dustfall values suggest that dustfall rates during 2017 remained within the range of dustfall rates typically recorded at the Mine site and were lower than the British Columbia dustfall objective for the mining industry. A21 dike construction activities likely contributed to the amount of dust during 2016 and 2017.
- Dust fall levels continued to show a decreasing trend in 2014 and 2015, based on distance from the mine. The lowest dust fall level was recorded at one of the control sites located 5.5 km away from the mine. Values recorded for each of the 12 dust gauges and 27 snow survey stations were below the BC objective range of 621 to 1,059 mg/dm²/y.
- In 2013, dust fall levels were lower than in previous years, with the exception of the area close to the airstrip (common with gravel runways) and an area downwind of the prevailing winds. Dustfall values for most stations remained below the BC dustfall objectives for the mining industry. The two stations that exceeded the BC objective were located beside the airstrip.
- In 2012 there was a decrease in dust levels at 7 of the 12 dust gauges as construction slowed down and Diavik transitioned from an aboveground to underground mine. Dust levels were still higher than predicted, most notably 250 meters (750 feet) from the airstrip. Dust levels were also higher near the PKC area, due to construction activities.

Overall, dust deposition rates have been more than what was originally predicted by models in the Environmental Effects Report, because that model did not account for additional construction and operational activities relating to underground mine development. However, all except one of the average dust deposition levels remained below the BC Objectives for mining.

Snow Water Chemistry

For comparative purposes, the snow water chemistry results were screened against effluent quality criteria (EQC) in the Water Licence (the limits for treated mine water being released back to the lake); however, there is no regulatory requirement for snow water chemistry to meet these criteria.

For 2020, analyte concentrations in snow meltwater decreased with distance from the Mine site. Concentrations in 2020 were lower compared to recent years for all parameters except nitrite which was higher than in previous years although, only slightly. The highest concentrations of all variables were less than their corresponding EQC.

- In general, analyte concentrations in snow meltwater decreased with distance from the Mine site in 2019. Concentrations were lower than measured during recent years for all parameters except ammonia, nitrite, and phosphorus. The highest concentrations of all variables were less than their corresponding EQC.
- Concentrations of snow water chemistry variables were below effluent quality criteria in 2018. This was also true for 2017, with the exception of 4 variables (i.e., aluminum, chromium, nickel

- and zinc), that were higher than these numbers at a single station (Station SS3-4, 200-1000 m away from the mine, and east of A21 construction).
- Measurements of the amount of chemicals in the water from melted snow indicate that the concentrations measured in 2016 and 2014 were also below the levels outlined in the Water Licence. In 2015, results were below water Licence levels for all snow cores except SS3-6 where elevated levels of aluminum, chromium, nickel and zinc were found. However, this sample was accidently taken closer to the mine site than it should have been so the ability to compare the results is limited.

Greenhouse Gas Emissions

Total greenhouse gas emissions for Diavik in 2020 was 192,741 tonnes of CO_2e . In 2019 it was 192,103 tonnes of CO_2e , in 2018 it was 219,010 tonnes, in 2017 it was 194,968 tonnes and 2016 was 191,632 tonnes of CO_2e , all of which were an increase from 2015 due to A21 dike construction. " CO_2 e" is an abbreviation of 'carbon dioxide (CO_2) equivalent'. CO_2 is a greenhouse gase, but there are many more greenhouse gases. To make it easier to understand greenhouse gases, a standardized method is to report all of the greenhouse gases from a site together as if they were equal to a set volume of CO_2 ; this is the CO_2e referred to above. The four wind turbines at Diavik were able to offset approximately 4.8 million liters of diesel fuel use in 2020, significantly up from a 4.1 million liter reduction in 2019.

Vegetation and Terrain

How much vegetation/land cover will be directly affected by the mine development?

EA Predictions and Overall Status:

Approximately 12.67 km² of vegetation/land cover will be lost at full development; and

Total vegetation/cover loss to date remains below the amount predicted

• Slow recovery of vegetation following mine closure.

Recovery of vegetation after mine closure cannot yet be determined.

How will the vegetation communities outside the mine footprint be changed as a result of mine development?

• Localized changes in plant community composition adjacent to mine footprint due to dust deposition and changes in drainage conditions.

Limited and local effects on plant types have been seen between areas closer to and further from the mine

Observations:

Development of the South Country Rock Pile contributed to an increase in mine footprint in 2020. Total habitat loss due to mine disturbance was measured at 11.41km². This is within the predicted amount of 12.67 km². Table 8 shows a running total of the habitat loss to date.

Table 8: Cumulative habitat loss each year.

١	Predicted /egetation abitat Loss (km²)	Up to 2001	2002 to 2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 to 2019*	2020	
	12.67	3.12	8.15	8.86	9.40	9.66	9.78	9.78	9.71	10.1	10.12	10.15	10.55	11.22	11.31	11.19	11.41	

^{*} Net gain of habitat from removal of undisturbed areas from total Mine footprint in 2019

In 2019, residual portions of terrestrial habitat within the Mine footprint that remained physically undisturbed since construction were removed from the total mine footprint.

Vegetation Plots

Permanent vegetation plots (PVPs) were established close to and far from the mine site in 2001 to monitor if there are differences in vegetation and ground cover near the mine and farther away from the mine. The program is conducted every 3 years and in 2004, the program expanded to include 15 mine plots and 15 reference plots (far from the mine). In each of these areas, 5 sample plots for each of 3 vegetation types (heath tundra, tussock-hummock and shrub) were set up so as to reduce within site variability of plant communities (which was high) and increase the likelihood of capturing true

change in plant abundance between mine and reference areas over time. The next vegetation plot study is scheduled for summer 2021.

- PVPs were sampled in 2016. The results of the analysis of dust deposition and vegetation data show differences in the amount and types of plant species in mine and reference plots (natural tundra at a far distance from the mine) over time that are likely due to Mine-related effects, such as dust deposition. Natural changes in conditions among PVPs prior to and after mining, annual differences in weather, plants being eaten by wildlife/caribou, personnel variability and difficulty in identifying uncommon species have also probably influenced results for plant species. However, the differences between mine and reference sites have remained largely the same over the past 10 years, with limited and small effects. Importantly, the data show no potential towards a disagreement in the observed patterns of the amount and types of plant species. Based on the principles of adaptive management and the slow response of vegetation in the Arctic, it is recommended that this program be continued to confirm if the observed differences and changes in plants continue during mining operations; however, the sampling frequency was reduced to once every 5 years
- The PVP's survey done in 2013 had results that showed that dust on vegetation may be changing the amount (abundance) and types (composition) of some plant species in vegetation types near the mine. Lichen cover on heath tundra and shrub mine plots continues to decrease over time, while the average numbers of vascular plants (e.g. grasses, small plants) in these same areas are increasing. This has also been observed in other studies looking at the effects of road dust on different types of plants.
- Observations of PVPs done in 2010 showed that there were more grasses and flowering plants
 closer to the mine versus further from the mine, and there was also lower soil lichen cover and
 higher litter cover values closer to versus further from the mine. During the previous sampling
 year, there was no ecologically significant difference in vegetation and ground cover between
 mine and reference plots for each of the plant communities assessed.

Lichen

Lichen studies are conducted every three to five years to determine the amount of metals in lichen from dust deposition closer to and further away from the mine with the next study scheduled for 2021.

- In the 2016 study, sample areas for lichen near the mine were in the same areas as the dust collectors, while the sample sites further away from the mine were previously chosen by TK holders at a distance approximately 40 km (24 miles) away. In 2016, a far-far-field sampling area was used to collect lichen at three stations approximately 100 kilometres from the Mine site.
- Metals concentrations in lichen were compared between areas close to and far from the mine,
 and among the 2010, 2013 and 2016 sampling events. The amount of metals in lichen confirmed

the observations of Elders that dust deposition was higher near the Mine when compared to areas further away. However, most metals in lichens from the areas near the mine in 2016 were also a lot lower than those found in 2010 and/or 2013. This decrease may be due to the change in mining operations from open pit to underground mining since 2012, resulting in an overall reduction in dust levels. Also, most metals levels in lichen from the far-field sampling area (100 km away) were similar to levels in the far-field sampling area (40 km away).

- The lichen monitoring program was also designed to determine whether the increased metals levels in lichen near the mine pose a risk to caribou health. A risk assessment was done in 2010 and showed no effects of concern to caribou health. Since the majority of metals levels have decreased below those reported in the 2010 risk assessment, a follow up risk assessment based on 2016 data is not required. Metal levels in lichen are predicted to remain within safe levels for caribou. Based on the principles of adaptive management, the sampling frequency for this study was reduced to once every 5 years to coincide with the change in the vegetation monitoring program.
- The 2013 sampling program had a scientific component focusing on metal levels in lichen and soil, as well as a TK component focused on assessing the type of landscapes caribou prefer for forage, use and migration, and to assess lichen conditions at various sample sites to see how dust from the mine potentially affect caribou use of the area. During the program, Elders noticed dust on lichen in near-mine areas, but did not see dust on lichen in areas further from the mine. The analysis of metal concentrations in lichen confirmed the Elder's observations, as the amount of most metals in lichen samples near the mine were significantly higher than those further from the mine. The Elders suggested that caribou would avoid near-mine sites because of poor food quality. It should be noted that the amount of metals found in lichen during the 2013 sampling program was lower than those found in 2010; this means that a follow-up risk assessment is not necessary as the level of exposure to metals remains at a safe level for caribou. Similar to the PVP program, lichen is sampled every 3 years, with 2016 being the next year this program is scheduled.
- The 2010 lichen study also looked at the metals data to find out how much dust caribou are exposed to (could eat) by eating the lichen with dust on it. With the exception of 4 metals, concentrations of all other parameters were higher close to the mine, as was expected. Aluminum levels were slightly high but the assumptions made for the risk assessment were very conservative (meaning that it was assumed that caribou feed in the area of the mine 100% of the time). Based on the risk assessment performed, the level of exposure to metals was within safe levels for caribou.

Re-vegetation

Research conducted to date has indicated that soils can be constructed from many different materials salvaged from mine operations (e.g. gravel, till from the bottom of the lake, treated sewage sludge) and used effectively for re-vegetation. Seed loss (erosion) may be an issue and use of erosion control techniques, such as erosion control blankets (straw mats) and the addition of some protective mounds, bumps and rocks on the ground, are showing some success for increasing plant growth. Lastly, the regrowth process at reclamation sites is faster than for natural recovery but it still takes a long time, with soil and plant development taking 2 to 3 years. A final report summarizing the results of the re-vegetation research done for Diavik has been completed and relevant information will be incorporated into the Closure and Reclamation Plan V4.1

Wildlife

Caribou

Will the distribution or abundance of caribou be affected by the mine development?

EA Predictions and Overall Status:

• At full development, direct summer habitat loss from the project is predicted to be 2.97 habitat units (HUs). (A habitat unit is the product of surface area and suitability of the habitat in that area to supply food for caribou and cover for predators);

Direct summer habitat loss from the project has remained below the value predicted.

- The zone of influence (ZOI) from project-related activities would be within 3 to 7 km;
 - The most recent estimate of the ZOI has been calculated as 14 km.
- During the northern (spring) migration, caribou would be deflected west of East Island and during the southern migration (fall), caribou would move around the east side of Lac de Gras; and

Northern migration generally occurs west of the mine; southern migration occurs east and west of the mine.

• Project-related mortality is expected to be low.

Mine-related caribou deaths have remained low.

Observations:

In 2020, caribou numbers on the East Island reported by staff ranged from 1 to approximately 150 with the average group size being 15 animals. Incidental observations were reported between February 6th and November 13th. Behaviour scans were completed on 33 caribou groups from 0 to 15km from the Mine. Various methods are used to determine whether or not animals were present in the vicinity of the Mine, which included incidental observations reported from pilots and workers, and using the satellite collar locations provided by GNWT-ENR.

Habitat

There was 0.06HUs of direct summer habitat lost in 2020 due to mine footprint expansion, primarily due to the planned growth of the WRSA-SCRP. The total amount of Habitat Units (Hus) lost to date is 2.81 HUs (see table 9 below). This is less than the amount that was predicted (2.965 Hus).

Table 9: Caribou habitat loss (HUs) by year.

Prediction	2000- 2005	2006	2007	2008	2009	2010	2011	2012	2013- 2014	2015	2016	2017	2018	2019*	2020	Loss to Date
2.97	1.96	0.15	0.18	0.13	0.04	0.00	0.02	0.13	0.00	0.13	0.06	0.00	0.08	-0.15	0.06	2.81

^{*} Net gain of habitat from removal of undisturbed areas from total Mine footprint in 2019.

Caribou summer habitat loss was greatest in 2001, when the majority of haul roads and laydown areas for mine infrastructure were constructed. The loss of habitat in 2008 was associated with expansion of mine infrastructure to support underground mine development, and that for 2012 related to development of the wind turbine pads.

Reevaluating a Zone of Influence (ZOI)

The most recent analysis completed for ZOI monitoring (2019) concluded caribou distribution follows spatial distribution of preferred habitat as would be expected in the absence of a ZOI.

An external, independent review of the Diavik and EKATI survey data was done by Boulanger et al. and the results indicated that the estimated Zone of Influence (ZOI - the size of area where caribou avoid the mine) on the probability of caribou occurrence around the mines was approximately 14 km. However, 2019, reanalysis of the same aerial survey data (1999-2012) determined a measurable ZOI was not detected or supported by the data (2019 Wildlife Management Report).

The spatial (space occupied by caribou) patterns showed that the availability of area and preferred habitat increases with distance from the mines. In the absence of sensory disturbance effects, caribou abundance (number of animals) and distribution should also increase with distance from mines. Results of 13 years of caribou monitoring with greater than 128,000 observations indicated that caribou in the Lac de Gras region are distributed in accordance to the spatial distribution of preferred habitat in undisturbed areas adjacent to the two diamond mines (Figure 15).

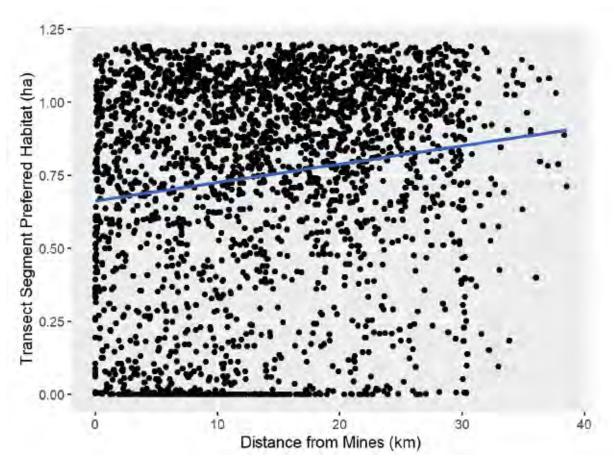


Figure 15 Spatial distributions of preferred caribou habitat area (ha) of aerial survey transect segments, 1998 to 2009, and 2012.

While previous analysis applied a presence-absence (of caribou) approach, it is believed that the conclusion of the presence of a ZOI was due to misinterpretation of statistical support for a positively correlated distance variable that was specified as an additive model effect.

The study demonstrated that an understanding of the distribution of habitat quality relative to sources of sensory disturbance is important for assessing the pattern of animal use in the study area. A graphical representation of habitat quality distribution is an informative first step for understanding how caribou or other animals should be distributed in the absence of sensory disturbance. Sensory disturbance is expected to reduce habitat use (through avoidance) relative to proximity (nearness) to human development. Thus, use of preferred habitat by caribou should change with proximity to human activity and the magnitude and spatial extent of the change is expected to be measured through statistical support of an interaction between distance and preferred habitat, which was not the case for these data.

Aerial Surveys

Due to low caribou numbers and community concern, aerial surveys have been suspended since 2009 (with the exception of 8 July to 13 October 2012). Aerial surveys continue to be suspended in favour of

other studies that support the GNWT Barrenground Caribou Management Strategy and Bathurst Caribou Range Plan.

Movements

The caribou movement 2018 analysis showed that caribou move more slowly when they are in good quality habitat. It found that more than half of the caribou paths were at least 100 km (61 mi) away from the mine and 24 km (15 mi) from the nearest lake. The relationship between difficult terrain and the distance caribou travel supported TK observations that caribou use flatter terrain and prefer to travel along shorelines. Despite there being a low number of movement paths near lakes in this study, caribou would move more slowly and stay in an area longer when they were near a lake. The analysis also showed that caribou move more quickly as they approach and spend time near the Diavik-Ekati mine complex. Lastly, long term scientific monitoring and TK have shown that caribou were usually present around the mine area in July and August. From 2009 to 2013, caribou remained closer to Contwoyto Lake and approached the areas of the mine during the fall rut period.

Ground-based Behavioural Observations

The goal of the ground behavior observation program is to generate enough observations to test possible impacts to caribou based on how they behave closer to and further from the mines. Monitoring is conducted cooperatively with the Ekati mine to collect and share data that covers distances from less than 2 km to greater than 30 km from mine infrastructure. Ground based-caribou observations are conducted by DDMI Environment staff on caribou groups that are sighted incidentally by mine site personnel and also on any caribou groups that are known to Environment staff to be on the Mine site. As well, caribou ground based behavior observations are conducted by DDMI Environment staff while conducting far field monitoring activities if there is presence of caribou. In past years, Diavik has had community Elders and youth participate in this work and contribute their input and knowledge to the program results.

From 6 February to 13 November, behaviour scans were completed on 33 caribou groups from 0 to 15 km from the Mine. Caribou collar locations received from the GNWT suggest these animals were most likely from the Beverly / Ahiak and Bathurst herds. The total number of caribou observed during behaviour scans was 509, group size ranged from 1 to 150 with the average group size of 15 animals. The average proportion of caribou behaviour observed is as follows; bedded 30% (16%), feeding 39% (17%), standing 5% (8%), alert 2% (5%), walking 20% (14%), trotting 2% (5%), and running 2% (4%). There remain insufficient numbers of groups to detect a 15% change in behaviour. To detect a change in behaviour 55 unique groups in two distance groups (i.e., total of 100 caribou groups) are required.

The limiting factor for determining this change in behavior was the small number of far-field observations (o observations). Due to changes in the herd size and migration patterns / timing over the past decade, caribou are generally in the study area during the winter when far-field observations are not practical or safe (related to cold temperatures) but on-site observations are safe and practical on account of continuous access to shelter(vehicles).

• Caribou far-field and near-field observations from 1998 through 2019 are presented in Figure 16 below.

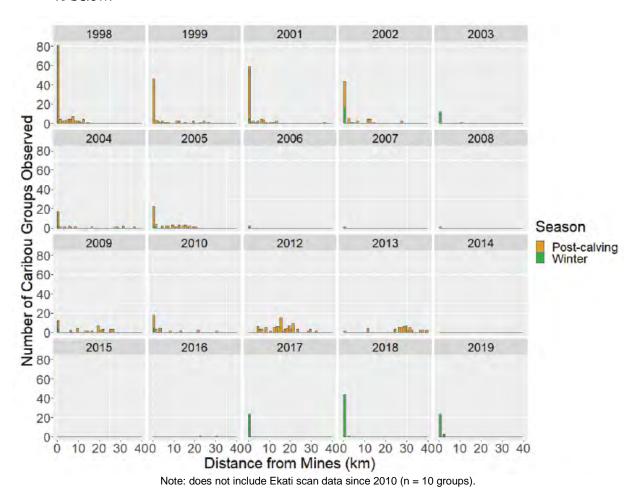


Figure 16 Frequency of caribou behaviour groups scans by distance from Mines from 1998 through 2019.

- Few caribou were observed in the study area in 2017, the number of behavioural observations/scans conducted was a total of 32 (o to 2.7 km from the mine). Caribou collars locations suggest these animals were most likely from the Beverly/Ahiak and Bathurst herds. The total number of caribou observed increased compared to previous years and was 513, with a group size range from 1 to 64 and an average group size of 16 animals.
- The following numbers of behavioural scans were conducted in past years: 2 in 2016 (both more than 20 km away from the mine), 38 in 2015, 9 in 2014, 90 in 2013, 86 in 2012, 104 in 2011, 83 in 2010 and 89 in 2009. A full analysis of caribou behaviour data was done in 2011.
- During the early years of this monitoring, Diavik had limited opportunities to study caribou behaviour on the ground through scanning observations; in 2003, 2004, 2005, 2006, 2007 and 2008, ground observations of caribou behaviour were successfully completed for 12, 14, 5, 8, 24 and 7 caribou groups, respectively.

Migration Patterns

Deflection (off course) movements of caribou due to mining activities was predicted in the EA. It was predicted that during the spring migration caribou would deflect west of East Island and during the fall migration caribou would move around the east side of Lac de Gras. The results from 1996 to 2018 have shown that there are years where collared caribou do not follow predictions but over the long-term there are no strong deviations from deflection prediction and/or an ecological consequence, such as fragmentation of the herd. Changes in rates of eastern movements by collared Bathurst caribou cows were not associated with autumn range distribution or activity level at the Mine. While natural factors did not strongly influence eastern movement rates, the result of no association with mining activity supports previous analyses and conclusions that the Mine is not having a strong influence on caribou migration patterns. Applying the principles of adaptive management, using collared caribou movements to assess the deflection prediction are no longer monitored since 2019. The deflection analysis does not inform on mitigation effectiveness so results will not lead to changes in how the Diavik Mine operates.

- Data from GNWT satellite-collared caribou in 2018 show that during the northern migration six caribou (3 females, 3 males) traveled west and five (2 females, 3 males) traveled east of Lac de Gras, which supports the prediction in the EER (Figure 17a). These results are also consistent with the long-term patterns observed since 1996, and further support the observation that the northern migration route of Bathurst caribou relative to the west and east side of Lac de Gras is influenced by their location on the winter range. During the southern migration, 17 collared caribou (9 females, 8 males) traveled west and 1 female collared caribou traveled east of Lac de Gras from July to 30 November 2018 (Figure 17b). The results for 2018 are not consistent with the prediction of eastern movement around Lac de Gras during the southern migration in the EER. Collared caribou cow seasonal range overlap from year to year has been consistent over time, so caribou are still able to access previously used areas despite variation in movements around Lac de Gras. The data suggest that the presence of mining activity within and adjacent to Lac de Gras has had little influence on the large scale movement and distribution of caribou in the region and no measurable ecological effect such as fragmentation of the Bathurst caribou herd. Based on the principles of adaptive management there is little benefit from continuing the monitoring of caribou collar deflections.
- During the 2017 northern migration the majority of caribou (31 in total; 17 males, 14 females) travelled west of the mine, which supports the prediction in the EER. Only 6 animals were seen travelling to the east of Lac de Gras (3 males, 3 females). During the 2017 southern migration, 11 caribou went east of the lake (1 male, 10 females), which supports the prediction in the EER. Five caribou (3 males, 2 females) travelled west of the lake.
- The 2016 northern migration 28 collared caribou (16 females, 12 males) traveled west and none traveled east of Lac de Gras, which supports the prediction in the EER. These results support the long-term patterns observed since 1996, and further support the observation that caribou movement west or east of Lac de Gras during the northern migration is dependent on their

winter range location (Golder 2011). During the southern migration, nine collared caribou (3 females, 6 males) traveled west and one female traveled east of Lac de Gras from July to 30 November 2016. The results for 2016 are inconsistent with the EER prediction of animals moving east around Lac de Gras during the southern migration. However, the comprehensive analysis conducted this year (Golder 2017) found that 120 (63%) of the 190 collared caribou moved east past Lac de Gras during past southern migrations from 1996 to 2016. Additionally, the comprehensive analysis found that 169 (73%) of the 231 collared caribou moved west past Lac de Gras during the northern migration. Long-term data best show that caribou movement paths generally correspond to the predictions made in the EER (DDMI 1998).

• Data from satellite-collared animals record cows in the Bathurst herd west of the mine site during the northern migration in 2015. Collar maps for the 2015 southern migration suggest that cows remained further north longer than usual (into November) and then the majority travelled east of Diavik during the southern migration as well. Two (2) collared cows were recorded moving west of Lac de Gras, as originally predicted. Analysis has shown that northern caribou movement patterns agreed with the EER prediction that the majority of collared caribou would travel west of the mine during the northern migration (78% of collared caribou). A total of 45% of collared caribou have travelled through the southeast corner of the study area over time during the southern migration. A TK study conducted through the Tłįcho Training Institute in 2013 developed a map (Figure 18) based on Elder observations that shows how caribou migrations have changed due to an increase in mining activity in the Slave Geologic Province. TK observations at that time suggested that caribou continue to move west and east of Lac de Gras during their migrations, while noting that they travel further from the mine and ultimately return to the same general areas for calving and overwintering.

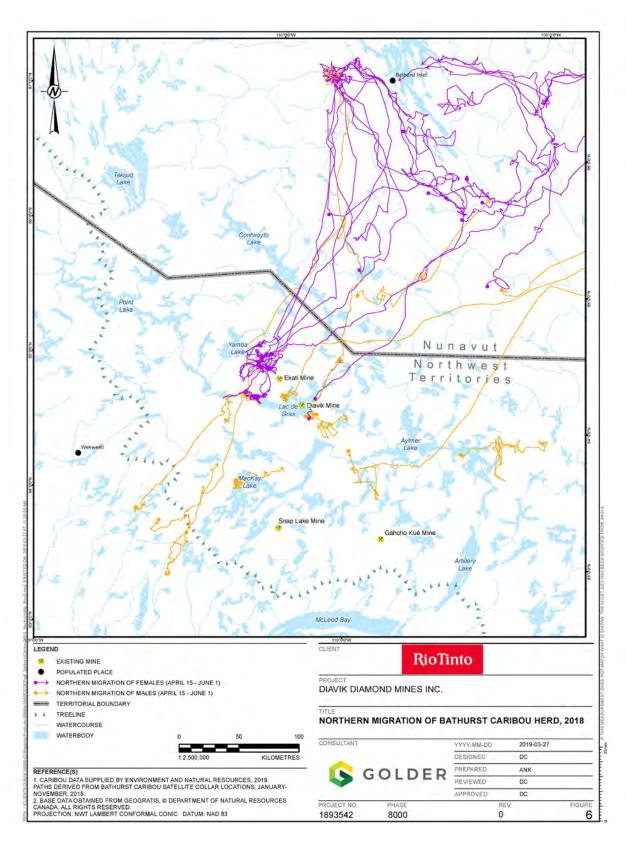


Figure 17a 2018 northern migration of caribou.

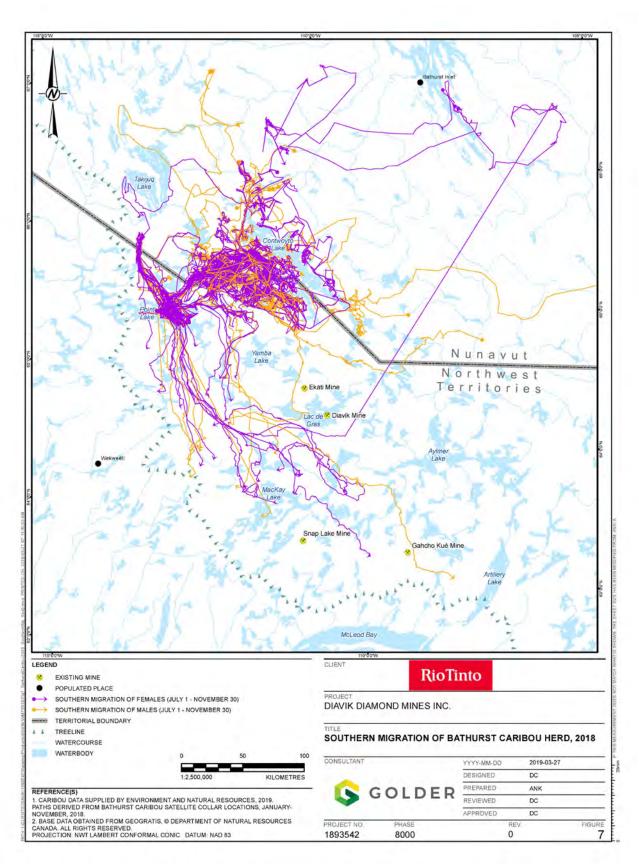
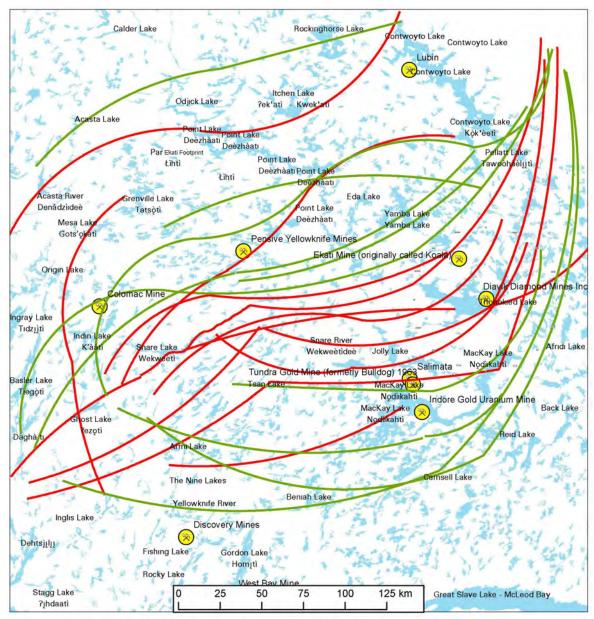


Figure 17b 2018 southern migration of caribou.



Bathurst Caribou Migration Trails Tłycho Traditional Knowledge



Figure 18 Caribou migration trails prior to and after the Mines (Tłįchǫ Training Institute).

Herding

There were no herding events for caribou at the Mine site in 2020, 2019, 2018 or 2017. In July of 2016, there a caribou was observed on the airport runway. The caribou was deterred from the runway by two staff members on foot. A second caribou was observed on the airport runway in July 2016, which staff members were able to deter by truck. No herding events took place in 2015. One caribou herding event took place in 2014, and no events occurred in 2012 or 2013. In 2011, caribou were herded away from mine infrastructure three times. There were also two herding events in 2009 – one for 27 animals near the airstrip with an incoming flight and one for a single caribou walking on the Type I rock pile. Very few herding events have been required since the mine began operating.

Mortality

There were no caribou mortalities or injuries caused by mining activities in 2020. On 31 March 2020, an injured caribou was reported to Environment staff. Diavik Environment staff monitored the animal for improvement over several days and contacted GNWT-ENR. GNWT-ENR advised that the best option for the injured animal was to euthanize. GNWT-ENR officers flew up on April 11, 2020 to euthanize the animal, and the animal was brought to Yellowknife for salvage.

In April 2019, Environment staff responded to a call of a carcass of a caribou from a wolf kill. Similarly, in 2017, there was one natural caribou mortality from a wolf kill that Environment staff found near the mine. There has been only one caribou mortality caused by mining activities (2004) since baseline data began being collected in 1995. Caribou mortalities on East Island, from baseline to 2019 are presented in the table below.

Table 10: Caribou Mortalities on East Island, Baseline to 2019.

Year	Natural Caribou Mortalities on East Island	Mine-related Mortalities
Baseline (1995-1997)	8	0
2000	7	0
2001	1	0
2002	1	0
2003	0	0
2004	2	1
2005	0	0
2006	0	0
2007	1	0
2008	0	0
2009	0	0
2010	0	0
2011	1	0
2012	1	0
2013	1	0
2014	1	0
2015	0	0
2016	0	0
2017	1	0
2018	0	0

Year	Natural Caribou Mortalities on East Island	Mine-related Mortalities
2019	1	0
2020	1	0

Support

The GNWT-ENR has been leading a working group to determine the best approach(es) to monitoring and DDMI will consider the recommendations developed as a part of this process.

In 2019, GNWT-ENR developed a Bathurst Caribou Range Plan, which proposes development limitations and hierarchical management actions for different areas in the Bathurst annual range. The Mine is located in Area 2 of the draft Bathurst Caribou Range Plan, which has a proposed moderate development level and status of cautionary. Diavik is in compliance with recommended mitigation described in the Bathurst Caribou Range Plan

Diavik contributed financial support to the GNWT to develop models for Bathurst caribou winter range habitat selection in 2015 and to increase the number of GeoFence collars on the herd in 2016. A Comprehensive Analysis Report was completed for wildlife monitoring results at Diavik following the 2016 monitoring year. At the request of EMAB, the results were used to determine the number of caribou in a given area (density) over the aerial survey route, in order to determine if the ZOI results in an unnatural increase of caribou outside of that zone. The result (1.62 animals/km2) is within the minerelated and natural levels of change seen in the study area from 1998 to 2012.

Grizzly Bear

Will the distribution or abundance of grizzly bears be affected by the mine development?

EA Predictions and Overall Status:

 Approximately 8.7 km² of grizzly bear habitat will be lost and there will be some avoidance of the area, but the abundance and distribution of grizzly bears in the regional area will not be affected measurably;

Bear habitat loss has remained below the value predicted; effects on the abundance and distribution of grizzly bears have been minimal

• The maximum zone of influence from mining activities is predicted to be 10 km; and,

Efforts to determine a ZOI for bears were not successful

• Bear mortalities due to mine related activities are expected to average 0.12 to 0.24 bears per year over the mine life.

Mine-related bear deaths have remained low and below the predicted rate

Observations:

Habitat

The amount of grizzly bear habitat that has been lost to date (in square kilometers) is 8.20 km², which falls below what was predicted (8.67 km²).

Mortality

The calculated mine mortality rate for grizzlies over the past eighteen years (since 2000) is 0.05, which is below the range predicted. One mortality occurred at the mine in 2004.

In 2020, following permission from GNWT-ENR, a sow grizzly and first year cub were euthanized at the Mine site. The animals were showing signs of habituation and posed a continued safety risk to personnel after the sow entered the main accommodations dining area two days in a row. The euthanization was completed by northern Indigenous individuals with extensive hunting experience and the animals were sent to GNWT-ENR for autopsy and meat salvage.

Abundance/Distribution

There were a total of 95 incidental grizzly bear reports near the Mine during 2020, which is similar to the 80 reports in 2019. The total number of bears observed throughout the year was 169, as a sow and 2 cubs frequented site and were counted as a single incidental observation. These numbers are not considered to be the number of bears in the Diavik area, as it is certain that these sightings include multiple observations of the same bear(s) due to repeat visits to East Island. The number of grizzly bear sightings in any given year does not appear to be influenced by the number of people on site (Table 11) however, staff reporting incidental observations does foster an awareness of wildlife issues at the Mine.

Table 11: Average Camp Population and Number of Incidental Grizzly Bear Observations, 2002-2019.

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
Ave # ppl in camp	1100	470	397	646	716	747	979	562	579	630	629	537	484	524	625	641	578	586	585
# Bear on island	5	19	24	43	21	41	5	22	44	56	97	67	69	77	94	89	90	80	95

- Grizzly bear habitat surveys were conducted from 2001 to 2008, but they were not successful
 at determining a ZOI for bears within the study area. Diavik submitted a request to remove
 the Zone of Influence monitoring requirement and this was supported by GNWT-ENR and
 EMAB.
- There was a change in the way grizzly bears in the Diavik and EKATI mine areas are studied in 2012, as well as for De Beers Canada Inc. properties. TK/IQ was used to identify the preferred habitat of grizzly bear and then determine the location in which to set the 113 posts to collect hair samples. Community assistants were also involved with post construction and deployment. The study was conducted in the summers of 2017, 2013 and 2012, for the Diavik and EKATI mines, and De Beers completed it in 2017, 2014 and 2013. The results (Table 12) show a stable or increasing number (depending on year) of grizzly bears in the northern section relative to monitoring completed in the late 1990's. Data analysis indicated that there have been no negative impacts on the regional population of grizzly bears (i.e. populations are stable or increasing, but never decreasing) due to the Ekati and Diavik mines. In 2021, with agreement among communities, regulators, mine operators, and monitoring agencies at the Slave Geological Provincial Wildlife Monitoring Workshop hosted by the GNWT, it was determined that the grizzly bear hair snagging program be discontinued.

Table 12: Number of Grizzly Bears Identified during DNA Analysis.

		Individuals		
Year	# samples	Male	Female	
2012	1,902	42	70	
2013	4,709	60	76	
2017	3,657	55	81	

Wolverine

Will the distribution or abundance of wolverine be affected by the mine development?

EA Predictions and Overall Status:

• The mine is not predicted to cause a measurable shift in the presence of wolverines in the study area; and

Wolverine presence has been variable within the study area across the years

• Mining related mortalities, if they occur, are not expected to alter wolverine population parameters in the Lac de Gras area.

Mine-related wolverine deaths have not altered the population in the area; a decrease has been observed but is likely related to the caribou population

Observations:

Wolverines were observed on East Island 17 times during 2020, which is slightly lower than the previous year. These observations are not recorded systematically and contain repeat sightings of the same animal. A total of 35 deterrent actions were used during 4 of the 17 observations. The most used deterrent was an air horn. One relocation of a wolverine occurred on 9 October 2020. This individual had been recorded frequently over the past two weeks prior to relocation. There were no wolverine deaths in 2020. Although there was one relocation in 2020, relocations and mortalities continue to be uncommon at the Mine.

• Since 2000, six wolverines have been relocated and five mortalities have occurred at the Mine. There were two relocations and one wolverine found dead at the Mine in 2016 (Table 13).

Table	2 12. WA	lvarina a	hcarvation	ns relocat	ions and ma	ortalities	baseline to 2020.
I abic	C 13. VV O		DSCI Vacion	13, 1 01004	ions and in	oi taiitics,	Da3CiiiiC to 2020.

	Baseline ^(a)	2000- 2004	2001	2002- 2007	2008	2009- 2011	2012	2013- 2014	2015	2016	2017	2018	2019	2020
Days with Visits	27/year Total = 82	25	36	149	46	53	11	9	118	105	44	28	21	17
Relocations	1	0	2	0	0	0	0	0	1	2	0	0	2	1
Mortalities	1	0	1	0	1	0	2	0	0	1	0	0	0	0

- (a) Includes wolverine occurrences recorded at three different camps (i.e. Diavik, Kennecott, and/or Echo Bay Road camps) annual numbers are not available for baseline investigations.
- A large portion of the 2015 sightings were of the same individual that was relocated on 23 March 2015. The number of occurrences of wolverine on East Island in 2008 was higher compared to other years (46); however it is important to realize that many of the sightings were of a male animal that was denning under South Camp and another wolverine that had a snow den on the west side of East Island.

Snow Track Survey

Snow track surveys began in 2003, and have been conducted with the assistance of community members, as available. In 2008, Diavik revised the wolverine track survey in favour of an increased number of transects of standard length compared to the surveys completed in previous years. They are 4 km straight lines that are randomly distributed throughout the study area, but some bias is placed on tundra areas identified as preferred habitat for wolverine based on TK. A second survey has been completed to estimate detection of wolverine snow tracks since 2015. Snow track survey results are presented in Table 14.

In 2020, a total of 12 tracks were found over a single first round of transect surveys from 1 April to 18 April, with an average track density of 0.138 tracks/km/day. Only the first round of the wolverine track survey was completed due to travel and site disruptions from the onset of the COVID-19 pandemic.

Table 14: Wolverine Track Index, 2003-2020.

Year	Survey Period	Number of Tracks	Distance Surveyed (km)	Track Index (Tracks/km)
2003	April 10 – 12	13	148	0.09
2004	April 16 – 24	22	148	0.15
2004	December 2 - 8	10	148	0.07
2005	March 30 – 31	7	148	0.05
2005	December 7 – 12	18	148	0.12
2006	March 30 – 1	5	148	0.03
2008	April 30 – May 2	15	160	0.09
2009	April 2 – 4	11	156	0.07
2010		No community a	assistant available	
2011	March 30 – April 3	23	156	0.15
2012	March 28 – April 3	22	160	0.14
2013	April 2 – 6	26	156	0.17
2014	March 23 – 26	25	160	0.13
2015	March 24 – March 29	21	160	0.13
2015	April 14 – April 17	17	160	0.11
2016	March 22 – March 27	50	160	1.25
2016	April 8 – April 13	50	160	1.25
2017	March 22 – April 4	10	160	0.06
2017	April 9 – April 19	42	160	0.26
2018	March 23 – April 11	10	132	0.08
2018	April 13 – April 22	4	132	0.03
2019	March 23 – April 2	14	160	0.09
2019	April 12 –April 21	32	160	0.20
2020	April 1 – April 18	12	160	0.13
2020	Second rour	nd not able to be com	pleted due to Covid-19 disru	ptions.

Snow Survey Conclusions

The results of the 2020 wolverine snow track survey are consistent with the finding of the 2019 compressive report analysis in that occupancy rates remain stable over the life of the Mine. The mean track density (how many tracks there are in a location) was the same as observed in one round of wolverine track survey in 2019. In 2020 detection rates could not be estimated in because the second survey was not completed due to COVID-19 travel and site restrictions.

- Key highlights from 2019 comprehensive analysis of the wolverine track survey data showed that;
 - Wolverine tolerate low level activity but may reduce their use of the study area as Mine activity increases.
 - O Habitat was found to have a small effect on colonization rates and transects with lower quality habitat were found more likely to be colonized. Wolverines may be changing their habitat selection over time in response to varying environmental pressures (e.g., food availability, competition) and what is considered high quality habitat in one year may not be consistent over time.
 - o Changes in population growth were weakly correlated with annual occupancy rates.

The 2019 analysis of the data showed that conducting multiple snow tracking surveys within a year is integral to correctly estimating occupancy rates, as wolverine detectability is relatively low at around 40%. Which was not surprising because wind and snowfall have been variable during the surveys among years. Continued monitoring of wind and snow conditions will help make accurate and unbiased estimates of detectability, and subsequently occupancy, in future years.

The data and analyses showed a small amount of variation in wolverine occupancy over time that was seldom below 70%. This suggests that wolverine occupancy in the study area has changed little from 2008 to 2019 despite the increased probability of extinction in response to higher Mine activity levels (i.e., FTE). In other words, annual declines in occupancy due to higher Mine activity do not have long lasting effects on wolverines, as they will reoccupy transects in the study area in years with lower Mine activity. Although there are only two years of overlap with wolverine density estimates at Diavik from 2005 to 2014, a similar stable trend was reported using DNA hair sampling data.

 Results from the 2017 comprehensive analysis of snow track data indicate that track density index (TDI) and occurrence of snow tracks have increased in the study area through time from 2003 to 2016. These patterns appear unrelated to the Mine, although both TDI and occurrence were negatively correlated with the amount of waste rock production.

Wolverine Hair Snagging

Diavik participates in a joint wolverine DNA research program with the GNWT and EKATI mine in certain years. This program was conducted at Diavik in 2005, 2006, 2010, 2011 and 2014 and the study area is associated with the Diavik, Ekati, Snape Lake and Gacho Kue mines, and Daring Lake. In 2018, a study of the data suggested that mine-related effects are very small if present, which is consistent with the long-term results of Diavik's snow track monitoring program and recorded annual adverse wolverine-Mine interactions. A key finding of the study was that wolverine across these study areas function as a single population, so there is limited utility for this type of monitoring to detect separate mine related effects. The study reported that the number of individual wolverine captured in the study has ranged from 17 to 24 wolverines from 2005 to 2014 with an estimated density of 2.2 wolverine per 100 km². The program frequency depends on the number of individuals identified and could be repeated every four to six years to detect an annual decline of 5%.

In 2021, with agreement among communities, regulators, mine operators, and monitoring agencies at the Slave Geological Provincial Wildlife Monitoring Workshop hosted by the GNWT, it was determined that the wolverine hair snagging program be discontinued.

Raptors

Will the distribution or abundance of raptors be affected by the mine development?

EA Predictions and Overall Status:

• Disturbance from the mine and the associated zone of influence is not predicted to result in measurable impacts to the distribution of raptors in the study area; and

Negligible impacts to the distribution of raptors in the mine area have been observed

• The mine is not predicted to cause a measurable change in raptor presence in the study area.

Raptor presence within the study area has remained similar over the years

Observations:

Since May 2005, peregrine falcons have been seen nesting on Diavik buildings and pit walls. Pit wall/infrastructure inspections are completed each year to determine use by raptors. Nests were considered active if they were observed to have eggs or young. Once a nest was confirmed to no longer be active, no further inspections were undertaken.

In 2020, a total of 55 Pit wall/infrastructure inspections were completed from 9 May until 5 September. A rough legged hawk nest was observed on the A21 south ramp pit wall on 20 May, 2020. The nest was active through June and early July, and 3 chicks successfully fledged from the nest in August. Potential raptor nesting was also observed at A418, A154, and the Site Services Line-up. A peregrine falcon was observed harassing a common raven at A418 on 6 June and again on 12 June, potentially defending a nest site. A rough-legged hawk along with whitewash was also observed at A154 at a previous nest site on 14 June, with additional whitewash observed at this location on 17 August. Finally, a pair of peregrine falcons were observed perched on a wall behind the Site Services Line-up area on 28 June. No eggs or young were observed at these locations in 2020 so were not confirmed as active nests. Once the nest was confirmed to no longer be active, no further inspections were undertaken.

Although not considered "raptors", common ravens are functional raptors and were confirmed nesting on a rock wall near the Site Services Line-up area.

On 17 September, 2020, an unresponsive rough-legged hawk was discovered on Lakeshore Boulevard and died shortly after the discovery. The carcass was sent to GNWT-ENR for necropsy, the cause of the mortality is unknown.

Table 15: Nests observed on Mine infrastructure and open pits in 2020.

Area	Species	Date	Observations
A21 South Ramp	Rough-legged hawk	20 May to 9 August	Potential nesting was first observed on 20 May and later confirmed on 3 June when the female was observed incubating. On 9 August, three nestlings were observed in

Area	Species	Date	Observations
Site Services Line Up Area	Common raven	25 May to 31 May	An active common raven nest was recorded on 25 May and 31 May. Fledglings were heard begging on 31 May. Nest success was not recorded.

- In 2018, during the inspections, one peregrine falcon nesting site was confirmed at the Site Services Building. In addition, a rough-legged hawk was observed building a nest at A418; however, it is unclear if any eggs or young were present in this nest. Although not considered "raptors", common ravens were confirmed nesting at the South Tank Farm with two young that fledged around the 11 July. A potential nest site on the pit wall for rough-legged hawk was observed at A154 in July but was not confirmed. There were no peregrine falcons found dead in 2018.
- Two active nest sites were found in each year from 2015 to 2017. Two rough-legged hawk and 1 peregrine falcon nest were found in 2014, 4 peregrine falcon nests were seen in 2013 and one in 2012, but no raptors were found nesting at the mine site in 2010 or 2011.
- There were no peregrine falcons found dead in 2017. In 2016, one peregrine falcon was found dead at the Mine. A peregrine falcon carcass was found near the main intersection for entry to the A21 area. The carcass had been picked clean by ravens and the cause of death could not be determined.
- There were no falcon deaths at the mine in 2014 or 2015. Two falcon mortalities occurred at the Diavik Mine site in 2013. On 20 July 2013, a peregrine falcon carcass with 3 wounds was found by the A154 dike; it is suspected to have hit a power line. On 17 November 2013, a juvenile carcass that had been heavily scavenged was found below the ore storage area in the A154 pit. There was no nearby infrastructure that would indicate that the mortality resulted from the Mine. No falcons died because of mine operations from 2009 to 2011, but one peregrine falcon was found dead in 2012.

Surveys

In 2020, a regional nest monitoring survey was completed over four days on 18 to 19 June and 27 to 28 July. The results of the 2020 nest monitoring survey are included in a regional database that is managed by GNWT-ENR. Diavik provided monetary support to the project for fuel and helicopter flight time costs. The next regional nest monitoring survey is scheduled for 2025.

Diavik, Ekati and the GNWT conducted falcon productivity and occupancy surveys annually in the Daring Lake, Diavik and Ekati study areas from 2000-2010 (Table 16). The falcon monitoring results from Daring Lake have been used as control data for productivity from an undisturbed area. Previously identified potential nesting sites were visited by helicopter in May each year to determine if nesting sites were occupied, and again in July to count any young in the nest.

- Nest occupancy remained relatively high in the Lac de Gras region throughout those 10 years (raptors were preferentially using the area within 14 km of the mine), supporting the prediction that mine activity levels would have a negligible impact on the presence and distribution of raptors in the study area. Annual changes in nest success were also not related to the level of activity at the mine site.
- As a result of these findings, discussions during the wildlife monitoring program review process from 2009-2011 supported a change in falcon monitoring methods to align with the Canadian Peregrine Falcon Survey (which in turn is aligned with the North American Peregrine Falcon Survey). The survey took place in 2015. The monitoring was conducted by GNWT-ENR biologists and included surveys of known nest sites in early and late summer to determine nest use and the presence of hatchlings. The monitoring approach included a helicopter survey using fly-by techniques to minimize disturbance to nesting birds
- The CPFS is no longer completed; however, DDMI will still contribute surveys of nest use and success in the study area for regional monitoring by GNWT-ENR and other researchers. Contribution of nest monitoring data to GNWT-ENR for inclusion in regional and national databases is scheduled for every five years. The next regional survey is scheduled for 2020.
- Chick production in past years has ranged from zero to seven in the DDMI study area. Observations made over the years were consistently similar to those of the control site at Daring Lake, where productivity and occupancy rates have changed little since baseline.

Table 16: Falcon nest occupancy and production at Diavik and Daring Lake, 2000 to 2010.

Year	Survey Area	Total Sites	Occupied	Productive	Total Young
2000	Diavik	6	2	2	5
2000	Daring	=	-	-	-
2004	Diavik	6	2	0	0
2001	Daring	13	3	1	3
2002	Diavik	6	4	1	3
2002	Daring	18	10	9	15
2002	Diavik	6	1	0	0
2003	Daring	10	5	3	4
2004*	Diavik	6	5	4	7
2004	Daring	12	6	1	2
2005*	Diavik	6	3	1	2
2005	Daring	10	5	1	1
2006*	Diavik	6	3	0	0
2000"	Daring	10	4	1	3
2007*	Diavik	6	3**	2	7
2007*	Daring	10	1	2	8
2008*	Diavik	6	5***	2	3
2000"	Daring	12	6	3	4
2000*	Diavik	6	4	2	5
2009*	Daring	12	5	3	6

Year	Survey Area	Total Sites	Occupied	Productive	Total Young
2010*	Diavik	8	6	3	7
2010*	Daring	12	5	3	7

- Daring Lake data originates from the Daring Lake research station (S. Matthews, personal communication, GNWT-ENR).
- *Diavik data includes spring (occupancy only) and summer (productivity only) monitoring data. Previous occupancy values based on productivity survey only.
- **Occupancy data for May provided by BHPB and GNWT site DVK 11 not checked
- ***Does not include additional site (DVK 19-1) found occupied during the June survey

Waterfowl

Will the distribution or abundance of waterfowl be affected by the mine development?

EA Predictions and Overall Status:

• At full development, 3.94 km² of aquatic habitat will be lost; and

The amount of aquatic habitat lost to date remains below the value predicted

• The mine is not predicted to cause a measurable change in waterfowl presence in the study area.

Construction and operation of the mine has little effect on waterfowl

• Early open water or early vegetation growth might attract waterfowl during spring migration.

Mine water bodies were used by birds in spring but they typically did not use them any earlier than shallow areas of Lac de Gras (e.g. east and west shallow bays)

Observations:

By the end of 2007, a total of 2.56 km² of shallow and deep water habitat had been lost due to mine development, and there had been no additional shallow or deep water areas developed since that time. With the start of development of the A21 dike in spring 2015, a total of 0.23 km² of additional water habitat was lost; 0.06 km² of shallow water and 0.17 km² of deep water. With continued A21 construction in 2016, a further 0.03 km² of shallow water and 0.47 km² of deep water habitat were lost. The total area of water habitat loss still remains below predictions (3.94 km²) at 3.12 km².

East Island shallow bays (natural bays in Lac de Gras) and mine-altered water bodies (ponds that have been changed or created for the mine site) were surveyed annually, on a daily basis, over a 5-week period during the peak spring migration (late May to late June) for waterfowl presence from 2003 to 2013. The results of surveys indicated that mine-altered water bodies are used by water birds, including ducks, geese, gulls, loons and shorebirds, during spring. However, the range of dates when water birds are first detected do not support the predictions that waterfowl or shorebirds are using mine-altered water bodies earlier than the East and West bays. As there is no similar control site that can be used for the shallow bays (they are a unique feature of the region), detailed statistical analysis on waterfowl presence is not conducted. Over the years, almost 20 different species of shorebirds have been observed, in addition to 5 species of dabbling ducks, 14 types of diving ducks and 4 kinds of geese. Each year, the shallow bays have the highest abundance of birds, followed by the north inlet. Overall, data collected suggest that construction and operation of the mine has had little effect on the presence of birds in the area.

Diavik consulted with Environment Canada, EMAB and other stakeholders about removing the requirement to monitor bird species abundance and diversity at East and West bays, given the results to date. This monitoring program was discontinued in 2014.

• Diavik has been operating 4 wind turbines since September 2012. During consultations with Environment Canada (EC) prior to installation, it was noted that no post-construction follow up monitoring for bird fatalities is required. However, Diavik voluntarily implemented a post-construction monitoring program in 2013 to assess the potential direct impacts the wind farm may have on birds. Surveys for bird carcasses below the turbines were undertaken to estimate bird strikes. Monitoring was completed by Diavik personnel twice per week, within a 50 meter radius of each turbine using the Baerwald Spiral method. In 2013, a total of 23 inspections were completed at the wind farm during post-construction mortality monitoring between 11 June and 23 August and no bird carcasses were observed. Instead of continuing with the more formal Baerwald surveys, Diavik now includes monitoring for bird mortalities at the wind turbines as part of the overall site compliance monitoring program. No bird mortalities have been observed during inspections of the wind farm are

4. Community Engagement and Traditional Knowledge

Meetings with community leadership and members, as well as school and site visits are some of the methods used to engage with communities over the years. Diavik has an approved Engagement Plan with the Wek'èezhìi Land and Water Board that was developed with review and input from the Participation Agreement (PA) organizations. The following table summarizes completed engagements relating to the environment that Diavik conducted in partnership with the PA organizations and potentially affected Indigenous organizations during 2020 (Table 17).

Where possible, Diavik tries to include community members in environmental monitoring programs. In 2020, community participation in the wolverine tracking survey had to be postponed due to the Covid-19 pandemic.

Additionally, organizations submit comments and recommendations to help Diavik improve their environmental monitoring programs, how results are presented or how Diavik responds to compliance concerns through letters to DDMI and the WLWB review process. Those submitted through the WLWB review process are recorded in the on-line registry, including DDMI's response to all recommendations. The Environmental Monitoring Advisory Board (EMAB) online library also contains technical reviews, workshop summaries and Board meeting minutes that capture reviews and recommendations that EMAB may provide to Diavik outside of the WLWB process.

Diavik received four direct communications or letters expressing concerns from PA partners about the mine or its operations during 2020. All cases were subsequently managed and closed.

In 2020 in-community and in-person engagements were drastically impacted due to Covid-19 and the large majority of engagements were completed by telephone and videoconference. Diavik worked with community partners to ensure that engagements were adapted to suit the needs of community during this time. Use of technology (video calls and meetings), translation and other methods were modified to maintain engagement. While face to face engagements are preferred in any year, the consideration of safety, health and wellbeing of people and community was prioritized.

Table 17: Community engagement during 2020.

Location	Date
Telephone	Multiple
YK Office	January 28
Virtual Meeting	June 23
Webinar	September 24
	Telephone YK Office Virtual Meeting

Engagement	Location	Date
Webinar #4 for the Independent Panel Review of Water	Webinar	October 1
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: IRP Final Findings		
PKMW Engagement Protocol - discussions	Webinar; Email	September
Workshop to Develop Water Quality Objectives with		November 5
Culturally Relevant Criteria – led by TG; Diavik invited to day		
one of three		
PA Implementation meeting	YK Office	November 30
Kitikmeot Inuit Association		
Covid-19 discussions	Telephone	Multiple
Regulatory & Closure Meeting	Virtual Meeting	June 30
Webinar #1 for the Independent Panel Review of Water	Webinar	July 20
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: Introduction to the Panel		
PKMW Engagement Protocol	Telephone,	August 18
	Email	
Webinar #2 for the Independent Panel Review of Water	Webinar	September 10
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: Diavik PKMW Model Presentation		
Workshop to Develop Water Quality Objectives with	Virtual Meeting	October 13, 16
Culturally Relevant Criteria		
North Slave Metis Alliance		
Covid-19 Discussions	Telephone	Multiple
Engagement planning and intro to new Regulatory Manager	Telephone	March 2
Regulatory, and Closure Update Meeting	Webex	May 26
Business Update Meeting	NSMA	October 16
	Boardroom	
Webinar #1 for the Independent Panel Review of Water	Webinar	July 20
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: Introduction to the Panel		
Webinar #2 for the Independent Panel Review of Water	Webinar	September 10
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: Diavik PKMW Model Presentation		

Engagement	Location	Date
Webinar #3 for the Independent Panel Review of Water	Webinar	September 24
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: IRP Review & Discussion		
Webinar #4 for the Independent Panel Review of Water	Webinar	October 1
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: IRP Final Findings		
PKMW Engagement Protocol	Telephone, Email	July 30
Workshop to Develop Water Quality Objectives with	Webex	Sept 22-23
Culturally Relevant Criteria	VVCDCX	3CP(22 2)
Yellowknives Dene First Nation		
Covid-19 discussions	Telephone	Multiple
Regulatory & Closure Update	Virtual Meeting	May 28
Webinar #1 for the Independent Panel Review of Water	Webinar	July 20
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: Introduction to the Panel		
PKMW Engagement Protocol - draft	Telephone/Ema	On-going
	il	
PA Implementation Meeting	N'dilo	December 11
Lutsel K'e Dene First Nation		
Meeting with new Environment Manager for LKDFN	DDMI	February 10
	Corporate	
	Office	
Covid-19 updates/discussions	Telephone	multiple
Regulatory and Closure Update	Webex	June 10
PKMW Engagement Protocol	Telephone, Email	July 10
W. I. I. I. D. I. W. I. O. II. O. I. W. I.		6 1 2 2
Workshop to Develop Water Quality Objectives with Culturally	Webex	Sept 24, December 3
Relevant Criteria		
Implementation and Liaison Meeting	Webex	October 28
Business Update meeting	Webex	December 12
Potentially Affected Indigenous Organizations		
Deninu Kue First Nation		

Engagement	Location	Date
Regulatory Update Engagement	Webex	December 7, 11
Webinar #2 for the Independent Panel Review of Water	Webinar	September 10
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: Diavik PKMW Model Presentation		
PKMW Engagement Protocol - draft	Telephone,	On-going
	Email	
Northwest Territory Métis Nation		
Regulatory Update Engagement	Webex	September 1
Webinar #2 for the Independent Panel Review of Water	Webinar	September 10
Quality Modelling for the Processed Kimberlite to Mine		
Workings(PKMW)Project: Diavik PKMW Model Presentation –		
participation by representatives from DKFN and NWTMN		
Webinar #4 for the Independent Panel Review of Water	Webinar	October 1
Quality Modelling for the Processed Kimberlite to Mine		
Workings (PKMW) Project: IRP Final Findings		
PKMW Engagement Protocol - draft	Telephone,	On-going
	Email	
Fort Resolution Métis Government		
Regulatory Update Engagement	Webex	August 24

Traditional Knowledge Panel

Due to Covid-19 restrictions on travel, the 2020 Traditional Knowledge (TK) Panel was cancelled. DDMI responses to the 2019 TK Panel Session #12 recommendations (Appendix III) will be formally addressed at the next TK Panel session currently scheduled for Summer 2021.

In 2019, the purpose of TK Panel Session #12 was to explore disposing of processed kimberlite (PK) in the open pits and underground mining areas (A418 and possibly A154 and A21), consider water quality and fish habitat within the pits upon closure regardless of whether there is PK in the pits, and allow for Diavik to formally respond to Session #11 recommendations around processed kimberlite made by TK Panel members (Appendix III).

The TK Panel members review closure plans for various areas of the mine, share their knowledge in relation to each topic, and present recommendations to Diavik. In this way, they are continually building their understanding of the mine site and its closure challenges, while also directly influencing Diavik's closure plans.

The goals for Session #12 were to:

- Provide input to monitoring and ensuring healthy water and fish during and after pit closure;
- Build on discussions for PK disposal; and
- Observe "with their own eyes" the pits, visit the water treatment plant, and view the North Inlet and adjacent vegetation plots.

Throughout discussions key questions were considered and discussed in relation to the session goals, and resulted in the following key guidance points:

- While fish and wildlife are smart and can sense whether habitat is healthy or safe, sometimes they don't have any choice. This is why, for example, contaminated or deformed fish have been found in other parts of the world.
- People understand fish, fish habitat and how fish survive in lakes based on their fishing experience.
- The TK Panel supports and expects ongoing rigorous scientific testing of fish, water, geology (e.g., fissures), wildlife, etc.
- The impacts of climate change on permafrost and water levels, in particular, remain a big question in peoples' minds.
- It will take time for the pits to return to a natural state that is healthy for fish.

The resulting recommendations (Appendix III) centred on the following themes as summarized below. DDMI will provide responses these recommendations to the TK panel at the next TK session.

• Pit Closure and Processed Kimberlite—Three recommendations pertained to moving the PK and PKC slimes from the PKC into the pits and redirecting future PK directly to the pits. It is

important that the TK Panel witness this transfer of PK as well as the inflow of water during refilling of the pit lakes with water from Lac de Gras.

- Monitoring Water (Science)—Three recommendations spoke directly to scientific monitoring of water, specifying how the pits should be refilled with water regardless of whether PK is placed in the pits; how, how often, and where monitoring water above the PK in the pits should occur; and key baseline information that should be collected prior to any breaching of dikes in pits that have been filled with PK. TK holders depend on scientific testing of water alongside monitoring according to TK.
- Monitoring Water (TK)—The TK Panel drew upon the TK protocols and methods developed for the AEMP TK Program in making two recommendations related to monitoring water in the pits after closure. The TK Panel wants to compare water in the pits with water in Lac de Gras and only when they are comfortable with both the scientific findings and TK testing can the dikes be breached. These recommendations apply for both pits that may or may not have PK.
- Watching Fish—The TK Panel discussed at length fish habitat within the pits; whether or not they wanted to encourage fish into pits that held PK after closure; and the conditions upon which breaching the dikes may be possible. The TK Panel built upon the AEMP TK Program to put forth four recommendations related to monitoring fish in and around the pits. As with water, people need to "see with their own eyes" that fish are healthy. These recommendations apply for both pits that may or may not have PK. TK Panel Session #12 September 12-16, 2019 10
- Monitoring (Other)—Four recommendations related to innovative and non-invasive testing methods and expanding the AEMP to include monitoring of plant life, sediments, and bugs. Again, these recommendations apply for both pits that may or may not have PK

5. New Technologies and Energy Efficiency

There are four wind turbines that operate at the Diavik mine, and staff continued to make the most of the efficiency of these turbines throughout the year. The wind turbines offset 4.8 million litres of diesel fuel use and approximately 11,000 tonnes of emissions (CO_2e) in 2020. The turbines have flashing lights to help deter wildlife and reduce bird strikes from the rotating blades. Additionally, approximately 139,278 litres of waste oil was collected to be used in the waste oil boiler during 2020. Since the waste oil burner was commissioned in 2014, a total of 1.3 million litres of waste oil has been burned to create heat, rather than having to ship it off-site.

In 2020, Diavik installed a new food waste dehydrator for kitchen food waste. The waste dehydrator system decreases weight and volume of wet kitchen waste that would otherwise report to the incinerator by 90%. The resulting dried waste, in turn, has a high caloric value (burns hot) and acts as a fuel source when burned in the incinerator which reduces the amount of diesel fuel required to operate the incinerator by up to 50%. The new dehydrating process also reduces the amount of waste requiring temporary storage (before it can be incinerated) and limits wildlife attractants as the dehydrated product is odourless.

In 2020, DDMI also installed a new and more efficient dual waste incinerator and removed an older less efficient one. The new incinerator is more fuel efficient, and when operated in combination with Diavik's waste management program that focuses on waste reduction, recycling, and waste segregation will results in a reduction in diesel consumption and greenhouse gas (GHG) emissions.

Additional energy efficiency measures include; heat recovery from the electricity generators and boilers, use of LED lighting in buildings, installation of variable frequency drive pumps around site which limit energy requirements, decommissioning of unoccupied buildings, and reducing heat in infrequently used buildings.

In 2020, the heat recovery, installation of variable frequency drive pumps and heat reduction resulted in combined energy savings of approximately 1,350,000 kWh (kilowatt hours), offsetting approximately 348,000 litres of diesel and 934,000 tonnes of Co2 emissions for the year. Diavik continues to look for new ways to reduce energy needs across site.

6. Operational Activities & Compliance

In 2020, the COVID 19 pandemic minimally impacted operational activities. DDMI implemented strict COVID-19 protocols and testing under the guidance of the Chief Public Health Officer of the GNWT to protect its workers. As such, travel to site was reduced and visitor travel was limited. Travel to and from small communities was cancelled for a period to protect the communities from possible exposure and as such, community help for the wolverine snow track survey was cancelled for the second round. Additionally, the GNWT Lands Inspector conducted virtual inspections through DDMI provided photographs of the site during periods when travel to site was limited. Although, the pandemic restrained travel and at times limited the number of people at site, DDMI remained in compliance with all regulatory commitments and was able to maintain its operational activities.

The information below provides a summary of the operational activities that occurred during 2020 to maintain compliance with regulatory requirements outlined in Diavik's Water Licence, Environmental Agreement, Land Leases, Fisheries Authorization and Land Use Permits.

More detailed information can be found in the Type 'A' Water Licence annual report. In 2020 operational and compliance activities include,

- Required SNP stations (under Water Licence WL2015L2-001) were sampled throughout the year. Where samples were unable to be obtained (e.g. safety concerns, weather, equipment issues), samples were re-scheduled or postponed. In 2020, parameters with Effluent Quality Criteria (EQC's) remained well below the maximum amounts allowed for in the Water Licence (Part H Item 26), including ammonia. Data is presented in monthly SNP reports that are submitted to the WLWB.
- Under ice interim AEMP in April/May 2020 and a interim open water AEMP session in August/September 2020.
- Air quality and dust deposition monitoring (dust gauge and snowcore collection).
- Quarterly toxicity samples from stations 1645-18 and 1645-18B were collected in March, May, August and November 2020. Results confirmed the effluent leaving the treatment plant into Lac de Gras to be non-toxic.
- The open pit bottom elevations were at the 8862 (A154), 8915 (A418), 9320 (A21) level, or 138m, 85m, and 320m below sea level (bsl), respectively. For comparison, the surface of the water on Lac de Gras is 415.5m asl.
- The total underground development for 2020 was 3,49m, which included 1,378m of lateral waste rock development, 163 eq m of vertical waste rock development, and 2,080m of ore development.
- Collection pond dewatering activities were conducted on a regular basis in 2020.
- The Tibbitt to Contwoyto Winter Road operations were successful and Diavik trucked loads of supplies to the mine site, and backhauled stored hazardous wastes for off-site recycling or disposal.

• The average camp population for the year was 585.

Surface Projects

- PKCF: Construction of the Phase 7 PKC Dam lift continued throughout 2020.
- PKCF: Phase 6 spillway construction completed.
- PKCF: Reclaim barge decommissioning.
- PKCF: Northwest decant sump installed.
- A21: DPS Well construction and piping installations.
- WRSA-NCRP: Reclamation work for the Waste Rock Storage Area-North Country Rock Pile continued with re-sloping of the pile and installation of monitoring equipment; clean cover material was also placed on the pile in preparation for closure.

Underground Projects (numbers below are associated with levels (masl) in the mine)

- Built pump station D8675.
- Constructed numerous vents for air flow.
- Constructed additional sumps and transfer holes for water management.
- Installed more pipelines and pumps for water management.
- Constructed numerous safety improvements: catwalks, escapeways, MLC bays, Zacon doors, bulkheads, mandoors, and bumper blocks.

Environmental Compliance

There were four direct communications or letters expressing concerns from the public about the mine or its operations during 2020. All cases were subsequently managed and closed. The 2019 Environmental Agreement Annual Report was deemed to be satisfactory by the Deputy Minister of the Government of Northwest Territories, Environment and Natural Resources on December 20, 2020. A copy of the Deputy Minister's letter on the 2019 Environmental Agreement Annual Report is provided in Appendix I.

- In 2020, DDMI failed to provide written notice to the WLWB and the Inspector regarding
 construction activities for the modification of the PKCF Phase 6 spillway. DDMI was well
 intentioned in the modifications as they would ensure the spillway to safely pass volumes of
 water during an extreme natural/environmental event.
- On October 22, 2020 the WLWB approved DDMI's request to decrease the frequency of groundwater monitoring at SNP station 1645-33 from once every week to once every month.
- On March 24, 2020 the WLWB approved DDMI's request to change the sampling frequency for faecal coliforms, biological oxygen demand, and oil and grease and SNP stations 1645-18 and 1645-18B (i.e. main effluent discharge) from once every seven days to once every calendar quarter.
- There was a total of 19 spills that were reported to the NWT spill line that occurred on the mine site during 2020. Spill report forms are submitted to the GNWT and the Inspector follows up on spill clean-up.

- The GNWT Lands Inspector had no major concerns resulting from inspections in 2020 outside of the Phase 6 spillway modification on conformance.
- EMAB and other organizations submit comments and recommendations to help Diavik improve their environmental monitoring programs, how results are presented or how Diavik responds to compliance concerns through letters to DDMI and the WLWB review process. Those submitted through the WLWB review process are recorded in the on-line registry, including DDMI's response to all recommendations. The EMAB online library also contains technical reviews, workshop summaries and Board meeting minutes that capture reviews and recommendations that EMAB may provide to Diavik outside of the WLWB process.

Planned 2021 Key Operational Activities;

- DDMI will continue to sample SNP stations as and when required by Water Licence WL2015L2-001.
- Monitoring for seepage outside of the Drainage Control and Collection (DCC) system.
- Collection pond dewatering on regular basis.
- Under-ice interim AEMP session in April/May and open water interim AEMP session in August/September to study mine effects on Lac de Gras lake water quality.
- Wildlife monitoring; raptor surveys during nesting period, recording of incidental wildlife sightings, wolverine snowtrack survey, caribou behavioural scans when caribou are on site,
- Dust deposition-monitoring programs (dust gauge and snowcore collection).
- Weekly waste and compliance inspections to monitor site waste management and environmental compliance.
- Lichen and vegetation study planned for July/August 2021 and scheduled every 5 years.
- Traditional Knowledge Camp planned for July/August 2021. The camp is the traditional knowledge component of the AEMP and it is held every three years near the Diavik Mine site to study the health of fish and water in Lac de Gras.
- TK panel planned for July/August 2021 and will be held at the TK AEMP Camp. TK Panel sessions are hosted by DDMI annually.
- Continuing the Phase 7 dam raise at the PKC Facility. The Phase 7 dam raise is the final dam raise and includes placement of rockfill, trimming of upstream face of the rockfill, placement of bedding material and a bituminous geomembrane liner. Phase 7 construction commenced in spring of 2018.
- Continued resloping of the WRSA-NCRP. Resloping of the side-slopes of the NCRP is carried out by equipment pushing from the top to bottom using multiple passes to achieve the designed slope. Resloping the WRSA-NCRP is part Diavik's closure design.
- Continued efforts on placing cover materials for reclamation of the WRSA-NCRP. The approved closure design concepts for the WRSA-NCRP includes a cover made with till and A21 waste rock.
- Continued development of the underground and open pit mines including a feasibility study on A21 underground development and A21 groundwater monitoring.

References for Further Information

Water Quality

- Monthly Surveillance Network Program (SNP) Reports
- 2020 Reports: Type A Water Licence, Seepage Survey Report
- AEMP Study Design Plan, Version 4.1
- Three Year AEMP Results Summary for 2017 to 2019
- AEMP Reference Conditions Report, Version 1.4
- AEMP 2020 Annual Report

All reports are available on the WLWB online registry.

Wildlife

- Wildlife Monitoring Reports
- Wildlife Monitoring & Management Plan
- 2013-2016 Comprehensive Wildlife Analysis Report

All reports are available on the EMAB online library.

Closure/Re-vegetation/Traditional Knowledge/Community Engagement

- CRP V4.1 (WLWB online registry)
- Final Closure Plan Waste Rock Storage Area/North Country Rock Pile, Version 1.2 (WLWB online registry)
- Diavik Community Engagement Plan V3.1 (WLWB <u>online registry</u>)
- TK Study for the Diavik Soil and Lichen Sampling Program, Tlicho Research and Training Institute (2013, http://www.research.tlicho.ca/research/partnerships-other-govt/traditional-knowledge-study-diavik-soil-and-lichen-sampling-study)

Air Quality

- Air Quality Monitoring Plan (EMAB online library)
- 2019 Air Quality Monitoring Report (EMAB online library)
- National Pollutant Release Inventory (http://www.ec.gc.ca/inrpnpri/default.asp?lang=En&n=B85A1846-1)

Socio-economics / Sustainable Development

- Environmental Agreement
- 2019 DDMI Sustainable Development Report

Management & Operating Plans (as per Table 2) and GNWT Inspection Reports

- Management and Operating Plans
- **GNWT Inspection Reports**

Appendix I GNWT ENR Minister Decision on the 2019 Environmental Agreement Annual Report (EAAR)



Government of Gouvernement des Northwest Territories Territoires du Nord-Ouest

Mr. Gord MacDonald
Principal Advisor, Sustainable Development
Diavik Diamond Mines (2012) Inc.
300, 5201 50TH STREET
YELLOWKNIFE NT X1A 2P8
gord.macdonald@riotinto.com

December 16, 2020

Dear Mr. MacDonald:

Satisfactory determination of the 2019 Diavik Environmental Agreement Annual Report

On September 16, 2020 Diavik Diamond Mines (2012) Inc. (Diavik) distributed copies of the 2019 Environmental Agreement Annual Report (Annual Report) directly to Parties of the Environmental Agreement (the Agreement), including: Aboriginal Peoples (as defined by the Agreement), Environment and Natural Resources (ENR), the Government of Nunavut (GN), and to the Environmental Monitoring Advisory Board (Advisory Board) per Article 12.1(a) of the Diavik Environmental Agreement.

An opportunity to review the Annual Report was provided by ENR to the Advisory Board, the Department of Fisheries and Oceans Canada (DFO), Environment and Climate Change Canada (ECCC), Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), and the Aboriginal Peoples as required under Article 12(e) of the Agreement. An attached response containing a satisfactory determination was received from the Advisory Board and North Slave Métis Alliance (attached). No response was received from DFO, ECCC or CIRNAC.

The Government of the Northwest Territories (GNWT) has reviewed the Annual Report and provided written comments (attached). The GNWT acknowledges Diavik's efforts to incorporate the recommendations from last year's Annual Report and the recommendations on the draft report made by ENR. In reviewing the written comments for both the draft and final reports, it was noted that content related to air quality did not meet reviewers expectations. The GNWT will address concerns related to Diavik's Environmental Air Quality Monitoring and Management Plan under a separate review.

The GNWT is satisfied that the contents of the Annual Report are in accordance with Article 12.1 and finds the 2019 Annual Report to be satisfactory.

If you have any questions about this process please contact Ms. Lee Ann Malley, Manager of the Environmental Assessment and Monitoring Unit, at (867) 767-9233 extension 53095 or LeeAnn_Malley@gov.nt.ca.

Sincerely,

Erin Kelly, Ph.D.
Deputy Minister

Environment and Natural Resources

Attachments

c. Grand Chief George Mackenzie Tłįchǫ Government

> Chief Edward Sangris, Dettah Yellowknives Dene First Nation

> Chief Ernest Betsina, N'Dilo Yellowknives Dene First Nation

Chief Darryl Marlow Łutsel k'e Dene First Nation

Mr. William (Bill) Enge, President North Slave Métis Alliance

Mr. Stanley Anablak, President Kitikmeot Inuit Association

Mr. Paul Emingak, Executive Director Kitikmeot Inuit Association

Mr. Geoff Clark, Director, Lands, Environment and Resources Kitikmeot Inuit Association Mr. Glen Guthrie, Director, Wildlife Lands and Environment Łutselk'e Dene First Nation

Ms. Adelaide Mufandaedza, Environment Manager North Slave Métis Alliance

Ms. Jessica Hurtubise, Regulatory Analyst North Slave Métis Alliance

Ms. Sarah Gillis, Director, Environment Department Yellowknives Dene First Nation

Ms. Laura Duncan, Tł₁ch₂ Executive Officer Tł₂ch₂ Government

Ms. Violet Camsell-Blondin, Manager, Lands Regulation Tłįchǫ Government

Ms. Grace Mackenzie, Mines Liaison Coordinator Tł_icho Government

Mr. Charlie Catholique, Chair Environmental Monitoring Advisory Board

Mr. John McCullum, Executive Director Environmental Monitoring Advisory Board

Mr. Michael Roesch, Senior Program Manager Crown-Indigenous Relations and Northern Affairs Canada

Mr. Daniel Coombs, Senior Biologist
Fish and Fish Habitat Protection Program Fisheries and Oceans Canada

Mr. John Olyslager, A/Head, Environmental Assessment North (NT and NU) Environment and Climate Change Canada

Mr. Julian Kanigan, Director Environmental Stewardship and Climate Change Environment and Natural Resources

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Mr. Julian Kanigan, Director Environmental Stewardship and Climate Change Environment and Natural Resources julian kanigan@gov.nt.ca

Appendix II Summary of DDMI Adaptive Management & Mitigation Measures

Table I-A Adaptive Management & Mitigation

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
Aspect Waste	- Minimize waste management issues Maintained dump site for inert waste materials Waste rock is managed to reduce the chance of acid runoff.	- All domestic and office wastes are incinerated at the waste transfer area. - Use of clear plastic bags in all areas for domestic and office space waste. - New WTA facility incorporated access road around the facility to allow equipment access and snow removal during winter to reduce opportunities for animals to climb over the fence; fencing angled and extended further in to ground to prevent access to burrowing animals; extensions placed on gate & gate automated in an effort to prevent animal access; improved sump facilities for contaminated soil containment area. - New incinerator housed in a building to further prevent animal attraction & rewards. - New, more efficient incinerator that burns more cleanly & completely. - Installed food waste dehydrator to improve incineration efficiency and reduce wildlife attractants. - Inert solid waste facility (landfill) access restricted. - A new landfill was approved within the WRSA-NCRP. - Storage procedure for empty waste bins to minimize wildlife incidents - Liner repairs conducted in areas where seepage from the dam was found. - More instrumentation was added in some areas to monitor dam and rock pile temperatures and movement. - Seepage monitoring stations changed in response to observations over the years.	- All employees and contractors are provided orientation on proper waste management. Color-coded collection bins and posters for non-food waste around site. - DDMI Environment Staff conduct regular toolbox meeting discussions regarding waste management. - Regular waste inspections are conducted by Environment Staff at the Waste Transfer Area and Landfill. A site-wide compliance inspection is completed weekly. - Site Services implemented clear plastic bags in all domestic and office areas to allow staff to verify contents prior to disposal. - Surface Operations staff collecting waste bins inspect bins prior to pick-up and notify Environment department to arrange for sorting. - Gate installed at inert solid waste facility to limit access to dump area. - Waste rock is classified according to sulphur level and is tested and sorted prior to disposal; Underground waste rock is all classified as Type III. - The waste rock pile is designed to encapsulate the rock with the highest sulphur content, and the PKCF contains the waste kimberlite rock; each of these areas are surrounded by collection ponds to capture seepage or runoff. - Water interception wells have been added to PKCF Dams to prevent seepage through the dam. - Granite (lowest sulphur content) is the rock permitted for use as a construction material at the mine site.	- During Inspector's visits in 2020, no concerns were raised regarding food waste, or the landfill. - Bear visits on East Island remained similar to past & bears sightings were not associated with waste management areas. - Wolverine visits on East Island were lower in 2020 than in previous years. - Improper disposal of waste is identified during DDMI waste inspections (including food waste) despite training and awareness sessions with site staff, but it is minimal when compared to the volume of waste disposed. - Installation of interception wells at the PKCF have proven effective. - Significant efforts undertaken to identify, inventory, remove, re-use or dispose of site infrastructure as a means of progressive reclamation. - Progressive reclamation opportunity for WRSA-NCRP continued with re-sloping and cover placement in 2020 - Development of the WRSA-SCRP continued in 2020 which includes reporting of any metasediments identified in the A21 pit and a 2% Type III rock trigger action response plan. No Type III was identified from the A21 pit in 2020.

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
		- Re-vegetation research is testing the use of waste rock as a substrate for plant growth Engagement conducted and Water Licence Amendment Application submitted with considerations for placing PK within mine infrastructure.	- Instruments were installed to monitor performance of structures such as the PKCF dam and the rock pile Extensive lab and field (test piles) experiments are done to test how the rock pile will perform Sewage sludge holding cell relocated to prevent human health concerns Installation of a waste oil heater for the batch plant New approach to waste management plans includes Solid Waste & Landfill, Hydrocarbon Contaminated Materials, Incinerator Management and Dust plans Storage and testing procedures developed and implemented for ash Investigation into rock management process that resulted in incorrect placement of Type III rock; areas where Type III rock was placed have been identified, recorded and tested as required. The Inspector is satisfied that concerns have been addressed.	

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
Water	- Effluent is treated	- Review loading and blasting procedures and	- The North inlet provides retention time for mine water	- Ammonia levels in 2020 were well below the licence limit of
	before being discharged	materials for opportunities to reduce ammonia levels	before treatment, allowing for ammonia reduction by	12 mg/L.
	to Lac de Gras or is	in pit and underground water.	natural attenuation; mine water discharge located far	- Ammonia levels in mine water and effluent have remained
	recycled.	- Re-use North Inlet water as supply water to facilities	away from treatment plant intake.	low over time.
	- Ammonia levels within	at the mine site.	- Influent and effluent in the NIWTP is monitored	- Parameters regulated in the Water Licence in NIWTP
	water licence limits.	- In 2009 the treatment plant was expanded to	consistently via instream sensors (immediate feedback)	effluent remain well below discharge criteria.
	- Prevent seepage water	increase treatment capacity to accommodate	and the SNP for parameters that are indicators of water	- Seepage was noticed in spring of 2020 to the SW of the
	entering Lac de Gras.	increased flows from the underground. The	treatment effectiveness.	SCRP-Waste Rock Storage Area (WRSA). Seepage rates
	- Decrease freshwater	expansion components are a "twin" of the original	- Daily sampling of pit, underground & effluent water to	were monitored daily, and samples were collected
	use.	construction, except sand filters were not required to	produce trends & track compliance.	whenever flow was present. A pump was installed to
	- Have fish and water	achieve water licence compliance and were not	- Plant able to automatically stop discharging treated	redirect water away from the receiving environment. It was
	quality that are safe for	installed in the expansion. NIWTP treatment capacity	water that meets or exceeds DDMI's internal limits	monitored to ensure it stopped flow from the SCRP. All
	use.	was increased by bypassing sand filters.	(which are set below the water licence limits).	parameters tested, including toxicity, were below limits in
		- Evaluated the use of treated effluent for dust	- Ammonia Management Plan followed to minimize	Schedule 4 of ECCC's MDMER Regulations.
		suppression.	ammonia loss.	- Over 850 toxicity tests have been done on treated effluent
		- Conducted a study with the University of Alberta to	- Batch and paste plants utilize treated effluent as a	since 2002 and have been non-toxic.
		evaluate the biological removal of ammonia and	water source instead of fresh water.	- Traditional Knowledge study of fish and water health in Lac
		other nitrogen compounds in the North Inlet.	- Sumps and pumps installed underground to collect	de Gras completed in 2018; fish and water quality were
		- Special Effects Studies (SES) are completed when	and transport water to the North Inlet.	found to be good.
		unexpected effects are measured during the AEMP.	- Ability to re-use water from the North Inlet and PKCF,	- Action Level response plans for AEMP results are being
		- Established Action Levels to respond to findings of	prior to treatment, to reduce freshwater intake	identified and implemented.
		various parameters of the AEMP.	volumes.	- PK trial to reduce amount of water in fine PK and increase
		- Evaluate seepage prevention or interception	- Frequent visual inspections of areas downstream of	coarse PK completed and successful; methods implemented
		methods upstream or downstream of areas of	dams, dikes & ponds.	to Plant operations since 2018.
		concern.	- Water intercepted with the use of wells and pumps	- TSS exceedance during A21 construction; management
		- Investigate, assess and repair site infrastructure	installed in PKCF dams.	actions in response to exceedance effective for remainder
		where seepage issues arise, and where possible.	- Repairs to damaged seepage prevention infrastructure	of construction season.
		- Improve turbidity curtain anchors in response to	e.g. 2016 Pond 5 dam liner repair, 2016 Pond 4 dam	
		elevated TSS levels due to deep water trench and site-	repair, 2019 repair of liner Zone 7 East PKCF Dam, and	
		specific exposure issues.	various collection well repairs in the PKCF.	
		- Retrofit Process Plant to change the waste stream	- Source water (North Inlet, Collection Ponds, PKCF)	
		ratio; reduce fine PK and increase coarse PK.	chemistry around site are monitored as part of the SNP.	

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
		- Preventative work-stop measures and a TARP were	- SES to determine mercury concentration/availability in	
		established for A21 construction to reduce potential	fish and sediments within Lac de Gras.	
		for TSS exceedances.	- Evaluation of hydrocarbon levels in North Inlet.	
		- Clarification of Licence requirement for water	- Separation of water collection systems underground	
		against the PKCF dams with WLWB.	to capture clean groundwater and divert it to the North	
			Inlet prior to it coming in contact with mine	
			infrastructure/ water.	
			- Use of absorbent berms or skimmers to remove oil	
			from water in underground sumps.	
			- Sediment collection sumps installed underground to	
			separate dirt from the mine waste water.	
			- Turbidity curtain and anchors for A21 dike construction	
			redesigned and reinforced.	

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
Wildlife	- Minimize wildlife-	- Wildlife monitoring programs are adjusted based on	- Orientation and environmental awareness training	- Mine-related wildlife incidents and mortalities have
	related compliance	results of previous years of studies.	related to wildlife on site is provided to all employees.	remained low over the years.
	issues.	- Review of wildlife monitoring programs has been	- Employees notify Environment department of any	- No caribou herding events occurred during 2020.
		done with all 3 mines, Monitoring agencies,	wildlife sightings; these are then recorded.	- In 2020, a sow and yearling cub were euthanized with
		government and communities.	- Caribou advisory board & site-wide radio notifications	GNWT-ENR approval after showing signs of dangerous
		- Study area expanded for caribou based on	for caribou presence on island.	habituation. The euthanizations were completed humanely
		potentially larger mine zone of influence than	- Waste inspections conducted regularly.	by northern Indigenous hunters, and the animals were sent
		predicted.	- Waste management system in place.	to ENR for autopsy and meat salvage.
		- Participation in a regional wolverine DNA study with	- Caribou are herded away from high-risk areas, such as	- An injured caribou was reported near site in 2020. The
		Ekati and GNWT to gain further insight on the	the airstrip, as required.	animal was monitored frequently for signs of distress. Based
		wolverine population in the Lac de Gras region and	- Bears are deterred from the mine site, as required.	on its immobility, GNWT-ENR advised it should be
		around the mine.	- Problem wildlife is relocated or destroyed, in	euthanized. ENR came to site on 11 April 2020 and carried
		- Monitoring methods for grizzly bear changed to	consultation with the GNWT.	out the euthanization.
		consider a more regional objective, while being safer	- Wildlife reporting system is in place site-wide, for	- In September 2020, an unresponsive rough-legged hawk
		for field crews; DNA study on the population in the	wildlife observations.	was found on Lakeshore Boulevard and died shortly after
		Lac de Gras region.	- Wildlife have the 'right-of-way' on site.	discovery. The carcass was sent to ENR for necropsy, but
		- Pit wall & infrastructure surveys for raptors that may	- No hunting or fishing is permitted by employees.	the cause of death is unknown.
		nest in the pit or on other structures was added to	- Buildings are skirted and higher-risk areas are fenced	
		the raptor monitoring program.	or bermed in an effort to deter animal access.	
		- Raptor surveys changed to align with the North	- Exterior man door handles have been covered with	
		American Peregrine Falcon Survey.	metal plates to prevent animal entry into buildings.	
		- Nests relocated or work activity ceased in response	- Surveys have been completed to look for caribou on	
		to wildlife presence.	roads, the rockpile and PKCF when caribou are getting	
		- Bird mortality monitoring conducted after	close to the mine.	
		installation of wind turbines.	- Wind turbines equipped with flashing beacons	
		- Building installed to contain new incinerator and	designed to reduce wildlife impacts.	
		prevent wildlife attraction.	- Mine-altered pond water levels are kept low to	
		- New Waste Transfer Area designed to minimize	discourage use by waterfowl.	
		opportunities for scavengers to enter the area and	- Re-vegetation research has been on-going for 10 years	
		access attractants/rewards.	and will help to determine habitat available for wildlife	
		- Storage procedure for empty waste bins to minimize	after closure.	
		wildlife incidents.	- TK Panel focuses on wildlife concerns when	
		- Inclusion of community members in wildlife	considering closure planning options and monitoring	

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
		monitoring programs to allow consideration of both TK and science when evaluating impacts Recommended reduction in PVP and lichen monitoring frequency based on results and slow growth of species in sub-arctic conditions.	programs Ground-based caribou surveys initiated when caribou are seen on site or collar maps show them approaching Revised storage procedure for empty waste bins on site.	
Dust	- Isolated higher deposition levels due to construction activities (dust deposition is expected to decrease as construction activities at Diavik decrease and the mine switches from open pit to underground operations).	 Evaluate dust control measures used to minimize dust released from construction and operations. Evaluate the use of treated mine effluent for dust suppression, which would reduce fresh water use from Lac de Gras. Evaluate dust suppressants that can be used in key areas to reduce dust levels. Assess vegetation and dust sample locations to provide better coverage of the area for improved data collection. Recalculate dust emission predictions to consider underground mining methods and construction activities. Use of Alberta (British Columbia prior to 2019) guidelines and objectives for dustfall as a comparison for DDMI levels. Addition and removal of snow core sample stations to program as and when required based on results or operational changes. Addition and removal of dustfall monitoring stations to program as and when required based on results or operational changes. 	- Dust suppression on roads and mine areas using water during non-freezing periods New crusher commissioned in 2009 is contained inside a building and has an advanced dust control and collection system Dust suppressant used on the apron, taxiway, airport parking lot and helipad (approved by both the Lands Inspector and Transport Canada) Trial use of dust suppressant on parking pads and some site roads Addition of vegetation monitoring stations to improve ability to detect potential changes to plant cover or composition Modified lichen monitoring program to obtain more samples from further distances & link metal levels to caribou exposure Use of blast mats to control dust in smaller-scale blasts use of raw water to wet roads during summer months Obtained far-far-field (100 km away) lichen samples in 2016 to determine differences from far-field (40 km) results, in response to community concerns; little difference observed.	- Control of dust from crusher, small blast areas and roads Dust suppressant continued to be used on the airport's taxiway, apron, parking lot and helipad in 2020 A21 operations resulted in higher dust levels during 2018 and 2019, but they remained below the BC Objectives for mining operations. 2020 values were comparable with the 2018-19 data TSP levels in 2018 were below the GNWT 24-hr Ambient Air Quality Guideline within the vicinity of the mine site (TSP no longer monitored for reporting purposes since 2018).

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
Air	- Measure consumption	- Evaluate new technologies and equipment that may	- Use of low sulphur diesel.	- DDMI reports GHG emissions annually to appropriate
Quality	of applicable sources of	allow for pollution controls/reduced emissions.	- Archaeological assessment for areas where wind	regulators and internally to Rio Tinto.
	GHGs - primarily diesel	- Wind power generation research.	turbines installed.	- The wind turbines offset fuel consumption by 4.8 million
	combustion.	- Determine energy draws, optimal use and options to	- Installation of Delta V fuel consumption monitoring	litres of diesel in 2020.
	- Meet Internal GHG	reduce power requirements for buildings on site.	system for all key power consuming buildings on site.	-Heat recovery, installation of variable frequency drive
	Reduction Targets.	- Various fuel consumption reduction initiatives, e.g.	- Boiler optimization program.	pumps and heat reduction in buildings offset 348,000 litres
	- Report GHG Emissions	no idling.	- Installation of 4 wind turbines, integrated into the	of diesel in 2020.
	to regulatory agencies	- Review of air quality monitoring program and	power distribution system, to reduce fuel consumption.	
	and within Rio Tinto.	equipment requirements.	- New more efficient waste incinerator that uses less	
		- Added monitoring of TSP in 2013 with 2 on-site	diesel.	
		stations (not monitored for reporting purposes after	- "Waste" heat from powerhouse generators used to	
		2018).	heat facilities connected to powerhouse (camps,	
		- Conducted energy audits on site buildings in 2014.	maintenance shops, etc.).	
		- Determine optimal operating temperatures for the	- Underground air quality monitoring conducted.	
		underground mine.	- Improving efficiencies of plant operations to reduce	
		- Evaluate energy efficient equipment options.	power draw.	
		- Evaluate and optimize transportation schedules and	- 2 TSP monitors installed at the mine site in 2013 (not	
		volumes to/from site.	monitored for reporting purposes after 2018).	
			- Installation of waste oil heaters on site.	
			- Adjust (lower) underground mine operating	
			temperature by 1°C.	
			- Install energy efficient motors on underground haul	
			truck fleet.	
			- Optimize the glycol heat recovery system in	
			Powerhouse 2 to reduce boiler use.	
			- Waste Management Plan revisions to test incinerator	
			ash and stack tests procedures.	
			New water fill station installed at A21 in 2019 for	
			watering roads in the A21 area.	

Appendix III TK Panel Session #12 Recommendations and DDMI Reponses to Session #11

Note: TK Panel #13 session was cancelled in 2020 due to COVID-19. Session #12 recommendations will be addressed at the next TK Panel Session in summer 2021.

DDMI Traditional Knowledge Panel Session #12

OPTIONS FOR PIT CLOSURE

Diavik Diamond Mine, NT September 12-16, 2019



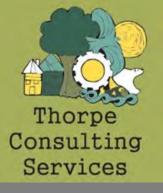


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Diavik Diamond Mines (2012) Inc. Traditional Knowledge Panel Report

Session #12: Options for Pit Closure

Diavik Diamond Mine, NT September 12-16, 2019

Facilitation

Joanne Barnaby, Joanne Barnaby Consulting Natasha Thorpe, Thorpe Consulting Services

Participants

Kitikmeot Inuit Association	Bobby Algona, Nancy Kadlun, Regan Adjun (youth), Mona Tiktalek (interpreter)
Łutsel K'e Dene First Nation	August Enzoe, Jimmy Fatt, Roger Catholique (youth)
North Slave Métis Alliance	Shirley Coumount, Wayne Langenhan
Tłįchǫ Government	Louis Zoe, Therese Zoe, Janelle Nitsiza (youth), Peter Huskey (interpreter)
Yellowknives Dene First Nation	Rose Mackenzie, Jonas Sangris, Jonathan Mackenzie (youth), Bernadette Martin (interpreter)

Observers/Presenters/Visitors

Łutsel K'e Dene First Nation	Thomas Lafferty (observer)
Tłįcho Government Lands Department	Joline Huskey (observer)
Environmental Monitoring Advisory Board	Janyne Matthiessen (observer)
Diavik Diamond Mines Inc.	Myra Berrub, Gord Cumming, Gord Macdonald, Sean Sinclair, Grant Stewart
Thorpe Consulting Services	Emma Wilson (transcriber)

Interpreting and sound equipment provided by Ryan Dempster, Pido Productions.

1 Background

Since 2011, the Traditional Knowledge (TK) Panel has guided Diavik Diamond Mines (2012) Inc. (Diavik) to appropriately and meaningfully consider Traditional Knowledge (TK) in operations, environmental management and monitoring as well as closure planning at the Diavik Diamond Mine (Figure 1). The TK Panel has been meeting since 2012 and continues to gather at least once a year to discuss select issues and concerns. The most recent gathering was held at the Diavik Diamond Mine from September 12-16, 2019 to consider various options for pit closure, particularly the possibility of placing processed kimberlite into the pits and, regardless of the presence of processed kimberlite in the pits, to discuss criteria for reconnecting the pit lakes to Lac de Gras.

In June 2018, Diavik filed for an amendment to its water license to consider allowing pits (i.e., mine workings) to be filled with processed kimberlite (PK). This proposed change to the closure plan, known as *The Processed Kimberlite to Mine Workings (PKMW) Project*, triggered an environmental assessment through the Mackenzie Valley Environmental Impact Review Board (MVEIRB).

While the North Inlet was originally planned as the topic of session #12, the timing of the environmental assessment for the PKMW led both DDMI and the TK Panel to speak about pit options instead. The North Inlet will be the focus of session #13.

2 Session Purpose and Overview

"Life is like a river; it only flows one way. We can't go back and change things, we have to work with what we have now in the present. That is why we have this panel to discuss this, and to try our best to make the land back like it used to be as much as possible." - Roger Catholique

The purpose of TK Panel Session #12 was to explore disposing of processed kimberlite (PK) in the open pits and underground mining areas (A418 and possibly A154 and A21), consider water quality and fish habitat within the pits upon closure regardless of whether there is PK in the pits, and allow for Diavik to formally respond to Session #11 recommendations around processed kimberlite made by TK Panel members.

The TK Panel members weighed the options of making the existing containment facility (i.e., the processed kimberlite containment, or PKC) higher than initially planned to increase the amount of available space versus the current proposal of depositing the processed kimberlite in mined out open pits and underground. Recommendations from the TK Panel contributed to this new proposal.

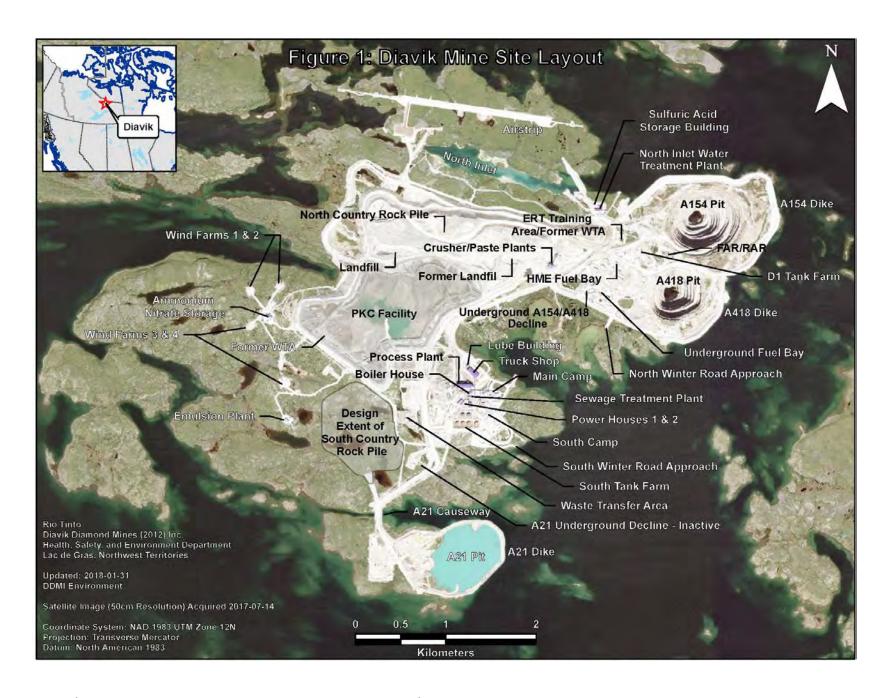
The group further explored the technicalities of placing PK into the A418 mine workings—disposing of PK from future operations directly into the pit as well as possibly moving much of the PK from the PKC. TK Panel members expressed their concerns around healthy fish and water in the pits and considered their comfort level around potential impacts of PK on the aquatic environment if pits are filled with PK. The group also discussed their comfort level around the timing and appropriateness of breaching a dike for mined-out pits that contained PK as well as pits that do not contain PK, and what monitoring processes and testing results would enable a breach to connect a reclaimed pit with Lac de Gras. Finally, the TK Panel considered the implications of the current alternative to continue PK disposal within the current containment.

The TK Panel revisited and built upon their findings from Session #6 which focused on the PKC, TK Panel #8 which considered reefs, fish habitat and water monitoring in the pits, as well as Session #11 which focused on options for processed kimberlite.

A short presentation highlighted pit options and reminded the TK Panel of their previous recommendations made around PK, pits, water, fish and fish habitat. Key TK values identified by the TK Panel (e.g., respect, stewardship, traditional laws) were emphasized as providing the backdrop for all discussions. Finally, the group was reminded that while there is currently PK disposal at other mines (e.g., Ekati), the Diavik mine is unique given that the kimberlite pipes are located under a lake and the mine operates on an island. This background information provided additional context for the Panel members when evaluating pit options on-site.

Diavik also presented an overview of revisions to the site-wide Closure and Reclamation Plan (V4) and proposed PKMW Project as the basis for subsequent discussions around the proposed disposal of PK in the pits, monitoring plans, and breaching the dikes. A second presentation highlighted community engagement on these topics in 2019.

The TK Panel heard Diavik's formal responses to recommendations from the TK Panel Session #11 Processed Kimberlite Options. In addition, they developed new guidance points and recommendations for the pit options as well as suggestions for future TK Panel sessions. Diavik provided initial responses to these recommendations while formal responses will be forthcoming. This format is the same as that of previous sessions and provides strong consistency, feedback, and communications between the TK Panel members and Diavik staff. Finally, consistent participation from TK Panel members made for strong and efficient discussion.



3 Session Goals and Activities

The TK Panel members review closure plans for various areas of the mine, share their knowledge in relation to each topic, and present recommendations to Diavik. In this way, they are continually building their understanding of the mine site and its closure challenges, while also directly influencing Diavik's closure plans.

The goals for Session #12 were to:

- Provide input to monitoring and ensuring healthy water and fish during and after pit closure;
- Build on discussions for PK disposal; and
- Observe "with their own eyes" the pits, visit the water treatment plant, and view the North Inlet and adjacent vegetation plots.

The session format followed an established routine, modified according to participant feedback and learnings over the previous eleven sessions. At the outset of each session, the group reviews and approves the proposed format and agenda. An evaluation process held at the end of the session then helps to inform and improve future sessions.

Like other sessions, participants engaged in a site tour to view the A418, A154 and A21 open pits, observe the PKC from atop the North Country Rock Pile, investigate the North Inlet, inspect the outflow from the water treatment plan into Lac de Gras, tour the water treatment plant and view the vegetation plots beside the North Inlet. While visiting the shores of Lac de Gras, traditional protocols of feeding the water were practiced.

The tour of the water treatment plant included an explanation of how turbid water settles in a series of tanks with the aid of a binding agent (i.e., flocculant) before being released into Lac de Gras. TK Panel members climbed several stories in the plant in order to look down at the impressive labyrinth of tanks, ponds, testing equipment, and platforms. They learned that the water treatment plant has the capacity to treat 90,000 m³ per day.

As in previous sessions, staff from the Environmental Monitoring Agency Board (EMAB) attended; however, this was the first session where EMAB observed the entire workshop rather than just the final day when the TK Panel presents the current session's recommendations. During Session #11, the TK Panel advised that EMAB could observe the entire TK Panel session.

4 Report Outline

This report outlines key themes related to pit options and water criteria for closure considered by the TK Panel and presents their subsequent recommendations.

Appendix A includes photos from the session and site tours. Appendix B contains the agenda while Appendix C provides a blank copy of the informed consent form that was signed by participants or observers new to the TK Panel. Daily notes were reviewed and verified by each participant and included in Appendix D. In addition, all questions posed to Diavik during each day were tracked and attached to the daily notes in Appendix D. Appendix E contains the background presentation on pit options and highlights previous TK Panel recommendations related to PK, the PKC and pit closure. Appendix F contains presentations given to the TK Panel by Diavik related to community engagement in 2019, and an update to closure plans for mined pits and the PKMW Project.

Diavik presents their response to TK Panel Session #11 recommendations on the PK options in Appendix G. The TK Panel gave their guidance and recommendations on options for the pits as shown in Appendix H. A short presentation used for discussion on the next steps and session topics is included in Appendix I, followed by participant evaluations summarized in Appendix J.

5 Proceedings: Key Questions, Themes and Guidance Points

The TK Panel was tasked with exploring guiding questions around pit options. The original questions proposed by the facilitators as well as the general direction of the session were modified with input from the TK Panel over the course of the session. These guiding questions included:

- What are your thoughts about the revised closure plans for the pit? Do you have any questions about the changes to the plan?
- If the pits are filled, what are your concerns or fears about reconnecting the pit to Lac de Gras?
- What other information do you need to feel comfortable with closure of the pit?
- If Diavik goes ahead with refilling the pit, what would you want to watch during closure to know that it is good? Regarding water? Regarding fish?
- If Diavik goes ahead with refilling the pit, what would you want to watch in the filled pit lakes to advise if the pit lakes should be connected with Lac de Gras?

Throughout discussions to consider these questions which balanced scenarios if the pits were or were not filled with PK, key observations emerged around monitoring, ways of knowing and communications.

5.1 Monitoring Guidance

Indigenous community members have been "monitoring" their lands since time immemorial. People have a strong understanding of what needs to be watched and how often which is generally grounded in their sense of guardianship and responsibility for taking care of the land, air, water and animals. Several re-occurring themes emerged around the challenges of monitoring today, particularly around given climate change impacts and uncertainties so present in the modern day. TK Panelists spoke to the importance of balancing western science and TK in long-term monitoring and how young people need the capacity and economic opportunities that can be provided by monitoring.

The TK Panel put forth the following guidance points around monitoring:

- Feeling comfortable and having confidence throughout closure is difficult given many complex and interconnected factors. Monitoring programs that we design and carry out will help us to feel more comfortable and less uncertain.
- We want to build on the existing aquatic effects monitoring program (AEMP) and camp to expand TK testing and to build scientific testing methods and skills with young people.
- Over and above the fact that community members are the rightful guardians of their lands, these modern times mean that people now need the employment opportunities that formal monitoring programs provide.
- Watching (monitoring) is just the beginning. Action plans need to be developed that identify responsibilities around addressing issues found through monitoring fish, water, wildlife, etc.
- Non-invasive monitoring and testing are always preferred to methods that harass, prod or disrupt fish, wildlife, etc. (e.g., cameras versus tagging).
- Even after the TK Panel is satisfied that Diavik is released of responsibilities, the pits and mine site need to be monitored every year, indefinitely.

5.2 Ways of Knowing Guidance

Expertise and understandings grounded in TK provide the framework for most discussions held by the TK Panel at Diavik. Indeed, this forum provides a unique opportunity for Indigenous ways of knowing to be discussed in a safe and supportive environment in a manner that doesn't always have to be measured against the typical standard of western science. Throughout this session, the TK Panel contributed TK that can be interwoven into closure planning.

The TK Panel put forth the following guidance points grounded in their ways of knowing:

- While fish and wildlife are smart and can sense whether habitat is healthy or safe, sometimes they don't have any choice. This is why, for example, contaminated or deformed fish have been found in other parts of the world.
- People understand fish, fish habitat and how fish survive in lakes based on their fishing experience.
- The TK Panel supports and expects ongoing rigorous scientific testing of fish, water, geology (e.g., fissures), wildlife, etc.
- The impacts of climate change on permafrost and water levels, in particular, remain a big question in peoples' minds.
- It will take time for the pits to return to a natural state that is healthy for fish.

5.3 Communications Guidance

Communications was a significant topic of discussion throughout this session. First, people wanted a more transparent and easier process for TK Panel findings (e.g., reports, guiding points, and recommendations) to be shared with TK Panel members and other community members. Second, members of the TK Panel commented on the importance of using creative ways to communicate complex engineering ideas related to the mine and closure.

Communication needs to be improved in terms of the members of the TK Panel accessing their reports and being available to community members and future TK Panel participants. While these are sent to each group several months after each session, there seems to be a disconnect such that members are rarely provided copies of the reports from their member Nations. Further to discussion, it was decided improvements to communications will require that:

- All TK Panel reports need to be uploaded to a central online location (e.g., EMAB);
- At the end of each TK Panel session, a print-out of the points of guidance and recommendations will be distributed to each member; and
- TK Panel members need to be notified by email or by phone when their communities
 receive the reports such that they can access a copy and speak to it with other community
 members.

Throughout the session, as the TK Panel wrestled to understand complex engineering designs, it was suggested multiple times from both elders and youths that physical models or animations would make it much easier for people to understand the works being proposed.

Further, the TK Panel put forth the following guidance points:

- The TK Panel needs more tools (e.g., 3D models, animations) that people can see and touch to help visualize and understand proposed plans.
- Again, the TK Panel continues to want to meet more frequently (i.e., twice per year).
- People who attend the TK Panel for the first time must look at previous reports before participating.
- As per Recommendation 8.6, the TK Panel would like to see both male and female youth participating in each TK Panel session.

6 Proceedings: Recommendations

The TK Panel made a total of 16 recommendations, as outlined above and presented in Appendix G, and summarized below:

- Pit Closure and Processed Kimberlite—Three recommendations pertained to moving the PK and PKC slimes from the PKC into the pits and redirecting future PK directly to the pits. It is important that the TK Panel witness this transfer of PK as well as the inflow of water during refilling of the pit lakes with water from Lac de Gras.
- Monitoring Water (Science)—Three recommendations spoke directly to scientific monitoring of water, specifying how the pits should be refilled with water regardless of whether PK is placed in the pits; how, how often, and where monitoring water above the PK in the pits should occur; and key baseline information that should be collected prior to any breaching of dikes in pits that have been filled with PK. TK holders depend on scientific testing of water alongside monitoring according to TK.
- Monitoring Water (TK)—The TK Panel drew upon the TK protocols and methods developed for the AEMP TK Program in making two recommendations related to monitoring water in the pits after closure. The TK Panel wants to compare water in the pits with water in Lac de Gras and only when they are comfortable with both the scientific findings and TK testing can the dikes be breached. These recommendations apply for both pits that may or may not have PK.
- Watching Fish—The TK Panel discussed at length fish habitat within the pits; whether or not they wanted to encourage fish into pits that held PK after closure; and the conditions upon which breaching the dikes may be possible. The TK Panel built upon the AEMP TK Program to put forth four recommendations related to monitoring fish in and around the pits. As with water, people need to "see with their own eyes" that fish are healthy. These recommendations apply for both pits that may or may not have PK.

• Monitoring (Other)—Four recommendations related to innovative and non-invasive testing methods and expanding the AEMP to include monitoring of plant life, sediments, and bugs. Again, these recommendations apply for both pits that may or may not have PK.

Recommendations are numbered to reflect the TK Panel session identification (i.e., Session 12) and to subsequently identify each specific recommendation (i.e., 12.1–12.16). Diavik will consider these and add them to their Recommendations Tracking Table. Diavik's response will be presented back to the TK Panel at the next session.

6.1 Pit Closure and Processed Kimberlite Recommendations

Diavik gave an overview of the updated site-wide Closure and Reclamation Plan (V4) after which Panel members considered the question: What are your thoughts on the closure plan? Do you have any questions about changes to the plan?

The TK Panel revisited previous discussions around the PKC and reminded one another how a rock cover would not be too effective given that the rocks would sink into the slimes which can behave like quicksand. Several panelists advised that it would be much better to put the slimes and PK back into the pits in part because that would mean that the rock pile above the PKC could be kept lower and more stable.

Feeling comfortable with any approach is difficult for people given environmental uncertainties and the complexities of mine closure processes. This challenge of 'feeling comfortable' applies to pit closure regardless of whether they contain PK. Panelists affirmed the importance of balancing scientific information with traditional knowledge so that a greater understanding informs pit closure planning. As always, people reiterated the importance of "seeing with their own eyes" so that they feel comfortable with what is happening during mine closure: they want to watch the slimes being transferred to the pits as well as when water is pumped into the pits.

- 12.1 The TK Panel would prefer to have the soft material that is produced from processing kimberlite (slimes) stored away from the surface so animals and humans cannot access it and accidently get caught in it. The Panel supports the option of putting the existing slimes that are in the PKC plus new slimes produced, in the bottom of the pit so that animals and people do not have access to it.
- 12.2 Remove the slimes that are currently in the PKC such that Diavik can start to cover the PKC to create a safe and hard surface at least three years earlier than the original closure plan.
- 12.3 The TK Panel needs to be on site to witness transfer of slimes and filling the pits with water (i.e., two TK Panel sessions).

6.2 Monitoring Water - Science - Recommendations

The group then considered the questions as they considered monitoring water and fish from both a scientific and traditional knowledge perspective:

- If the pits are filled, what are your concerns or fears about reconnecting the pit to Lac de Gras?
- What other information do you need to feel comfortable with closure of the pit?
- If Diavik goes ahead with refilling the pit, what would you want to watch during closure to know that it is good? Regarding water? Regarding fish?
- If Diavik goes ahead with refilling the pit, what would you want to watch in the filled pit lakes to advise if the pit lakes should be connected with Lac de Gras?

A key strength of the TK Panel is that members recognize that both scientific understandings and traditional knowledge must be considered in closure planning: in some cases, panelists advise that scientific testing must be done before monitoring according to traditional knowledge.

August Enzoe commented: "The water they are putting in the pit . . . every year they are going to test if the water changes. They will know it: they are scientists."

A concern that has been raised in previous sessions is the potential for contamination from the pit walls such that the water might be contaminated when the pits are filled. Diavik advised that several studies have been carried out to "wash the walls" and test the resulting water quality and that no concerns have been raised. Regardless, the TK Panel wants to see the pits filled from the bottom up in order to minimize the water running down the pit walls as well as to minimize missing or stirring up of PK with water by controlling the way in which water is added to the pits.

When it comes to water, the TK Panel discussed the importance of science to first identify if the water is healthy before people would like to test water quality by tasting. People are familiar with scientific water quality monitoring and discussed the importance of measuring for temperature, turbidity, clarity, and colour as well as for oxygen levels, knowing that all of these measures can determine whether the water is safe for fish and animals. Small "bugs" in the water are also important for fish and need to be measured to know whether the water is healthy. The TK Panel don't want the dikes to be breached until there was enough food in the water for them.

It is important that scientific testing take place throughout all seasons and at multiple depths in the water column. TK Panel members want to make sure that results are shared widely with community members.

TK Panel members discussed the time required for water to settle in the pits before the dikes could be connected with Lac de Gras. Estimates ranged from two to six years as the range for required monitoring.

Climate change impacts, as with previous sessions, continued to be an underlying concern throughout all discussions. Members of the TK Panel worry that plans today won't accommodate changes tomorrow. Some participants questioned whether the PK might generate heat or at least conduct heat thereby not freezing when placed in the underground/pits. Diavik explained that the PK cannot freeze as it will not be placed in an area of permafrost. Other people worried about fissures expanding to allow groundwater movement between the filled pit and surrounding areas. Diavik explained that this wasn't anticipated to be an issue. Much of the discussion around this question related to potential permafrost melt, ice thickness, wind behaviour, changing water levels, instability, and uncertainty. Scientific monitoring of these key indicators must be carried out for several years in order for panelists to feel comfortable with the results and to support any breaching of the dikes.

The TK Panel put forth the following recommendations related to scientific water monitoring:

- 12.4 Fill the pits from the bottom up with Lac de Gras water so that water is not running down the walls of the pits. Let the water settle for a minimum of two years.
- 12.5 Ensure scientific tests are done every season and throughout the year to understand the health of the water and to compare water in the pits to water in Lac de Gras. Scientific water testing should include, but not be limited to temperature, turbidity, clarity, colour. The presence of micro-organisms should be measured as well as oxygen levels. Such tests should be done at various depths in the water column as far down as the PK. The results should be regularly shared with the TK Panel.
- 12.6 Diavik should collect baseline information on Lac de Gras from around the dikes so that impacts of breaching can be measured. The TK Panel should work with scientists to record ice thickness, wind behaviour and snow-drifting before and after dikes are breached.

6.3 Monitoring Water - TK - Recommendations

After considering water monitoring according to science, the TK Panel explored how traditional knowledge monitoring of water should occur in and around the pits. The TK Panel agreed that the water and fish must be deemed "safe" from a scientific perspective before any traditional knowledge tasting tests can occur. Only when the scientific and traditional knowledge results agree that the water is safe, could the dikes be breached so that the pit water is reconnected with water of Lac de Gras. The TK Panel, after much discussion and clarification was provided over the session, decided that the first phase of breaching the dikes should allow for water movement, but not fish movement particularly for pits containing PK.

Watching water according to traditional knowledge is well understood by the TK Panel members who have worked hard to develop protocols being used at the AEMP TK Camp. These protocols should be used for ongoing monitoring on-site both within the pits and outside the dikes in Lac de Gras. However, taste testing would only occur after results from scientific water testing were reviewed.

Panelists expect that the water within the pits will smell differently when there is PK rather than natural sediments and want to make sure there is enough time for settling to occur. In the words of Nancy Kadlun:

"If we put water in that pit and sit there for a while and it has no more oxygen, so best try to put those dams down so that the water can move around before the pit gets stale."

Following much discussion, the TK Panel put forth the following recommendations around monitoring water according to TK:

- 12.7 The TK Panel would like Diavik to test water in the pits for at least two years (until the water is deemed good) and compare this to water in Lac de Gras. Water samples will be collected from multiple depths at various times throughout each year and tested according to the AEMP protocols. Taste tests will be done after scientific sampling tells us the water is drinkable where they will watch for smell, clarity (turbidity), temperature, colouration, scum on the water or tea, and water and tea for taste.
- 12.8 When scientists and the TK Panel agree that the pit water is safe (i.e., drinkable) and stable (i.e., consistent), then breaching of the dikes can occur to allow water to flow back and forth but prevent fish from entering the pits, at least initially.

6.4 Monitoring Fish Recommendations

The TK Panel struggled with deciding whether they considered it respectful and safe to encourage fish to be allowed back into the pits, particularly if they were filled with PK. Discussions considered whether fish habitat should be encouraged through restoration within pits or whether natural processes alone would be enough. In the end, the group decided that breaching the dikes for fish would be part of a second phase after people were confident that the water was safe and that building fish habitat within the pits is not preferred.

Fish are known to have an acute sense of smell, just like animals. This sense will guide fish to know whether it is safe to enter the pits once the dikes are breached. Fish are known to be smart and use temperature to guide their movements. As Louis Zoe explained:

"The old timers used to say this time, in the fall time, with the north wind and the deep water, they will go into the deep water. The north wind comes in and it is cold for us. And that is how fish go into deep water. And a little warm out they go in deeper and they know where the warm water and hot water is: the fish know that too."

The TK Panel discussed the fact that it would take time before fish would return to the pits after the dikes are breached because there needs to be enough food for them. One panelist suggested that it would be important to see how the micro-organisms survive in the pit water: if the fish food doesn't survive, people will know that the fish won't survive.

The TK Panel put forth the following recommendations around monitoring fish according to TK:

- 12.9 Set nets for fish testing near the dikes in Lac de Gras to help get baseline information on current fish health and continue once the dikes are breached to compare.
- 12.10 Whether or not the dikes allow fish passage, do not build up fish habitat within the shallow pit areas where PK is placed as fish will return naturally if they sense it is safe and the nutrients and oxygen that they need are there. Focus DFO requirement for fish habitat enhancement in pits where there will be no PK. The TK Panel needs to be there to watch and provide guidance on how to enhance fish habitat.
- 12.11 Put fish in pit lakes to be monitored, tested and sampled before the dike is completely breached once water is deemed "safe" (i.e., at least 2-6 years of monitoring). If the fish are the same as fish in Lac de Gras according to TK testing (e.g., liver, heart, gills, bladders, etc.), carry out a second stage breach for fish passage.
- 12.12 Monitor fish from pit lakes according the AEMP protocols, but only taste test them if there is an acceptable comfort level and scientific results confirm that the fish are safe for eating.

6.5 Monitoring - Other - Recommendations

The TK Panel generally supports monitoring approaches that are gentle and cause the least disturbance to the land, air, water, fish and animals. Innovative and non-invasive monitoring approaches are preferred. Monitoring according to TK can be carried out in ways that minimize disturbance although more discussion is required to develop these approaches by building on existing AEMP TK protocols. In-person and on-the-ground monitoring is important so people can feel comfortable.

The TK Panel put forth the following recommendations around monitoring:

- 12.13 Install motion activated cameras around the dikes to monitor wildlife activity to see if birds and animals are trying to access pit water. Test animals if possible through non-invasive methods. Any dead animals should be tested for contaminants. Report all findings to communities and the TK Panel.
- 12.14 Monitor plant life, sediments and bugs in the water within the pits in the spring (after break-up), summer, and fall (before freeze-up) through our own eyes. Combine this with scientific test results. Further discussion is needed to detail this monitoring approach.
- 12.15 Develop details of monitoring programs (including training and employment) and action plans for community members. Expand the aquatic effects monitoring program and camp to include the TK Panel and a base for TK monitoring as one step in this plan.

6.6 Communications Recommendations

The TK Panel discussed the importance of their work reaching a broader audience and the difficulties they experience in accessing reports from the TK Panel sessions. In addition to the points of guidance identified above, a formal recommendation to put materials online was made:

12.16 Develop an online location where all TK Panel materials will be stored and made accessible. Request that EMAB host these on their website. Communications presentations should be developed and uploaded so that they can be used by TK Panel members within their communities.

7 Tours of the PKC, Pits, North Inlet, and Water Treatment Plant

On the second day of the session, TK Panel members went on a site tour which included extended stops on the top of the North Country Rock Pile to view the PKC, pits A154 and A418, the North Inlet, the shores of Lac de Gras and the water treatment plan. On the fourth day, a short trip to view pit A21 and some vegetation plots near the North Inlet took place as the group ran out of time during the first site tour.

The first tour included a viewpoint atop the North Country Rock Pile (NCRP) where the TK Panel could see the current PKC and Diavik could explain how PK is presently added to the PKC and point out both the coarse PK and fine PK. The group next drove along the dikes of A154 and A418 with stops at A154 near Lac de Gras as well as above the viewing trailer in the pit of A154. From these stops, people could visualize how the PK might be placed in the pit. TK Panel members were able to view the special fish habitat construction areas (e.g., shoals and reefs discussed in Session 8) as well as visualize where the dikes would be breached upon closure.

Next, the group visited the west end of the North Inlet where Diavik demonstrated the water collection techniques for water quality monitoring. The TK Panel was able to view the water before it goes through the water treatment plan. Next, the group visited the water treatment plant. Diavik walked the group through the treatment process, showing the various machinery and technologies in place. People could see the transformation of water as it comes into the plant, moves through settling ponds and then flows back into Lac de Gras.

The last stop of the tour was to visit the shores of Lac de Gras adjacent to the east end of the North Inlet so that they could view the water treatment plant outflow pipes as well as compare the Lac de Gras water to the North Inlet water. Here, the TK Panel offered ceremony to the shore and waters of Lac de Gras.

Since time did not allow for the group to view A21, a second site tour was arranged two days later. First, the group visited the vegetation plots on the south side of the North Inlet. The group was able to explore these areas which were revegetated. They also made observations of various scat in the area, including grizzly bear, wolf, rabbit and siksik (i.e., ground squirrels), attesting to wildlife in the area.

The group then viewed A21 from a viewing platform. A clear difference between the kimberlite pipe and the surrounding rock could be seen. The group was also reminded of their tour to the site during a previous TK session when the dike was being built and the area was still filled with Lac de Gras water. This would have been similar to what the future pit lake will look like once the pit is refilled with water at closure.

8 TK Panel Next Steps

During each TK Panel session, participants typically re-visit the list of session topics carried out to date and those suggested for the future (Appendix I). During this session, the TK Panel confirmed that they would like the next session to focus on the North Inlet. Other potential future TK Panel topics remain:

- North Inlet fish and water health
- Monitoring at Closure (Closure Overview)
- Updates on PKC closure options
- Closure Details: building demolition, metal disposal, waste disposal, contaminants, laydown areas, airports, roads, etc.
- Closure Inspection Criteria
- 2021 Aquatic Effects Monitoring Program (AEMP) TK Camp

Once again, the TK Panel discussed the importance of meeting twice per year rather than just once per year so that people can more easily remember what is happening. Diavik suggested that once per year as more realistic from a schedule and budget perspective. Regardless, it is important to tie the sessions to important mine closure processes or regulatory review windows: people don't want to miss an opportunity to contribute meaningfully.

The group weighed the pros and cons of meeting on-site versus in Yellowknife. There was general agreement that on-site was better but that occasionally a session in Yellowknife or one of the communities would be a good idea.

Other general discussions included the suggestion that both a male and female youth from each group could attend future sessions and to hold the TK Panel meetings during times when the youth are off school.

Appendix A

TK Panel Session #12 Photos

Viewing the Processed Kimberlite Containment



Therese and Louie Zoe chat with Peter Huskey while observing the PKC.



Thomas Lafferty discusses processed kimberlite while on the North Country Rock Pile with Jonas Sangris and Gord Cumming.



PKC in foreground with Lac de Gras in the background.



Elder Jimmy Fatt inspects the North Country Rock Pile and PKC.

Viewing the Pits



The TK Panel look out over Pit A154.



The TK Panel comments that the rocky terraces in Pit A154 are attractive to raptors, which circle overhead during the tour.



Joanne Barnaby chats with Rose Mackenzie and Emma Wilson in front of Pit A154.



Left to Right: Peter Huskey, Gord MacDonald, Sean Sinclair, Myra Berrub, August Enzoe, and Roger Catholique after inspecting Pit A418.



The TK Panel observing Pit A418.

Viewing North Inlet



August Enzoe takes a moment to reflect at the North Inlet.



DDMI demonstrate how water is collected for monitoring at the North Inlet.



Sean Sinclair holds a water sample for the TK Panel to observe.



Youth Roger Catholique enjoys a moment in the sun.

Viewing the Water Treatment Plant



The water treatment plant is equipped to treat 90,000 m³ of water per day, some of which is pictured in settling ponds.



The TK Panel observes water as it goes through multiple treatment processes before being released into Lac de Gras.

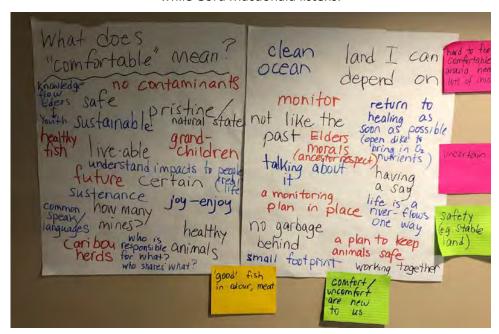


Sean Sinclair explains how regular sampling at the water treatment plant is part of quality control and monitoring at Diavik.

Workshop



Elder Bobby Algona explains his concerns about processed kimberlite and water quality in the pit while Gord Macdonald listens.



Understanding what makes people "comfortable" was a cornerstone to understanding options for pit closure.



Elders Louie Zoe and Jonas Sangris take turns with the microphone.



Youths present recommendations of the TK Panel to DDMI. L to R: Roger Catholique, Jonathon Mackenzie, Janelle Nitsiza, and Regan Adjun (behind Janelle) with Gord Macdonald in the foreground.

Appendix B

TK Panel Session #12 Agenda



Agenda Diavik Diamond Mines Inc. Traditional Knowledge Panel Session #12: Pit Closure Options September 12 - 16, 2018

Thursday, September 12

3:00 pm Arrive onsite; Security, Orientation & camp tour (~1 hr); Site Tour

Discussion; Rooms & Luggage

Friday, September 13

8:30 am Opening Prayer, Welcome, Round Table Introductions, Review Draft

Agenda, Workshop Purpose Overview

9:00 am Presentation: Site overview, Closure and Reclamation Plan update,

Community engagement, Responses to previous session

recommendations

Group Discussion

10:40 am Presentation: Pit Closure Options

Question 1: What are your thoughts about the revised closure plans for the pit? Do you have any questions about the changes to the plan?

Group Discussion

12:00 pm Lunch and Site Tour

Saturday, September 14

8:30 am Opening

Question 2: If the pits are filled, what are your concerns or fears about

reconnecting the pit to Lac de Gras?

Group Discussion

Presentation: Previous TK Panel Discussions related to Pit Closure

12:00 pm Lunch

1:00 pm Question 3: What other information do you need to feel comfortable

with closure of the pit?

Presentation: Next Steps / Next Sessions

4:30 pm Close



Sunday, September 15

9:30 am Opening

9:45 am Question 4: If Diavik goes ahead with refilling the pit, what would you want

to watch during closure to know that it is good? Regarding water?

Question 5: If Diavik goes ahead with refilling the pit, what would you want

to watch in the filled pit lakes to advise if the pit lake should be connected

with Lac de Gras?

Group Discussion or Break-Out Groups

11:30 am Lunch

12:30 pm Group Discussion

4:30 pm Close

Monday, September 16

7:30 am Bags & belongings out of rooms, store under stairs in lobby

8:30 am Opening

8:35 am Facilitators present draft of TK Panel recommendations for discussion

Group Discussion: Finalize recommendations

11:40 pm TK Panel Presentation to Diavik: TK Panel recommendations

Diavik Response and Group Discussion

12:40 pm Closing Circle and Prayer

1:00 pm Lunch

3:00 pm Check out for return flight

Note: Frequent breaks will be scheduled throughout the day, as needed. Changes to agenda may occur depending on TK Panel input. Each day will close at 4:30 pm.

Appendix C

TK Panel Session #12 Informed Consent Form

Diavik Diamond Mines Inc. Traditional Knowledge Panel

Informed Consent Form

l,	on September 12, 2019 give
permission for	Diavik Diamond Mines (2012) Inc. and its Contractors (i.e.,
Thorpe Consul	ing Services, Joanne Barnaby Consulting, PIDO
Productions) to	take notes, photographs and / or audio and video
recordings rela	ed to my participation in meetings, workshops and events
related to the T	raditional Knowledge Panel established for the Diavik
Diamond Mine.	I understand that my participation includes meetings and
workshops held	throughout each year either in communities in the NWT or
NU or at the Di	avik Diamond Mine.

Through my signature below, I understand that:

- I consent to have my words, activities and responses regarding and related to my knowledge recorded on maps, in notes and photographs, and using audio- and video-recording equipment (collectively referred to as Traditional Knowledge Data);
- 2. I am free to choose not to respond to any questions asked or participate in any discussions without prejudice or penalty;
- 3. I can choose to be anonymous in my participation without penalty;
- 4. My representative Aboriginal Organization, DDMI and / or its contractors may use the information collected to contribute to operations and closure planning at the Diavik Diamond Mine;
- 5. DDMI and its contractors may share my information which I have verified and given permission to share in either reports and/or photographs and provide such information to my Aboriginal organization and other regulators:
- 6. I agree that my contributions may also be used for future educational, cultural, heritage, and environmental purposes that are outside the scope of the TK Panel and that my representative Aboriginal organization, DDMI and/or its contractors will make all reasonable efforts to consult me, or my descendants, before using my information for purposes not indicated above;

- I will receive financial compensation for my participation in the TK Panel in accordance with DDMI and my Aboriginal organization policy;
- 8. I am free to request that any information I share is removed, erased or deleted and that I will have the opportunity to verify draft video-documentaries, reports and maps to make edits before I sign them off and that final copies will be provided to me;
- 9. I also understand that DDMI cannot ensure the protection of the Traditional Knowledge from public release once the reports are released (e.g., via youtube.com, Facebook, other social media, or Aboriginal group websites);
- 10. The Traditional Knowledge Data will be summarized and included in a report which will be publicly available.

Signed on September 14, 2019 in Diavik, Northwest Territories.

Signatures:	
Participant	Aboriginal Organization
Diavik Diamond Mines Inc.	Witness
Thorpe Consulting Services	

Appendix D

TK Panel Session #12 Daily Notes

Traditional Knowledge Panel Session #12: Pit Closure Options Day 1/4 Notes

Date Friday, September 13th, 2019

Time 8:30am – 12:00pm Location Diavik Diamond Mine

Handouts 1. Agenda

Participants Bobby Algona (Kitikmeot Inuit Association) BA

Regan Adjun (Kitikmeot Inuit Association) RA
Nancy Kadlun (Kitikmeot Inuit Association) NK
Roger Catholique (Łutsel K'e Dene First Nation) RC
August Enzoe (Łutsel K'e Dene First Nation) AE
Jimmy Fatt (Łutsel K'e Dene First Nation) JF
Shirley Coumont (North Slave Métis Alliance) SC
Wayne Langenhan (North Slave Métis Alliance) WL

Janelle Nitsiza (Tłįchǫ Government) JN Louis Zoe (Tłįchǫ Government) LZ Therese Zoe (Tłįchǫ Government) TZ

Jonathan Mackenzie (Yellowknives Dene First Nation) JM Rose Mackenzie (Yellowknives Dene First Nation) RM Jonas Sangris (Yellowknives Dene First Nation) JS

Facilitators Joanne Barnaby (Thorpe Consulting Services) JB

Natasha Thorpe (Thorpe Consulting Services) NT

Observers Mona Tiktalek (Kitikmeot Inuit Association - Interpreter) MT

Bernadette Martin (Yellowknives Dene First Nation - Interpreter) BM

Peter Huskey (Tłįcho Government - Interpreter) PH Joline Huskey (Tłjcho Government - Staff) JH

Thomas Lafferty (Łutsel K'e Dene First Nation - Staff) TL

Janyne Matthiessen (EMAB (Environmental Monitoring Advisory Board)

Myra Berrub (DDMI - Principal Advisor, Communities and Social

Performance for Closure) MB

Gord Macdonald (DDMI - Principal Advisor, Sustainable Development) GM

Gord Cumming (DDMI - Environment Technician) **GC** Sean Sinclair (DDMI - Superintendent, Environment) **SS** Ryan Dempster (PIDO Productions - Sound Technician) Emma Wilson (Thorpe Consulting Services - Transcriber)

1.0 Opening Prayer, Welcome, Round Table Introductions, Review Draft Agenda, Workshop Purpose Overview

Natasha: Welcome everybody and thank you for coming out to the 12th panel. Let's do a round table of introductions, to share your name and where you are from.

Bobby: Good morning, Bobby Algona.

Nancy: Nancy from Kivalliq Inuit Association.

Wayne: Wayne Langenhan from NSMA.

Regan: Regan from Kivalliq Inuit Association.

Roger: Roger Catholique from Łutsel K'e.

Shirley: Shirley Coumont from Yellowknife.

August: August Enzoe. I am from Łutsel K'e. 12 years this has been going on. That is a long time.

Jonas: Jonas Sangris from YKDFN.

Jimmy: Jim from Łutsel K'e.

Jolene: Jolene Huskey with Tłycho Government.

Janyne: Janyne Matthiessen with EMAB.

Rose: Rose with Yellowknives Dene First Nation.

Louie: Louis Zoe from Gameti.

Therese: Therese Zoe from Gameti.

Janelle: Janelle from Tłycho.

Thomas: Thomas Lafferty, I am representing the Łutsel K'e Dene First Nation.

Janyne: Jonathon Mackenzie from Dettah.

Gord C: Gord Cumming - Diavik.

Gord M: Gord Macdonald from Diavik.

Myra: I am Myra and I am from Diavik.

Joanne: Joanne Barnaby from Hay River and I'm helping to facilitate this panel.

Natasha: Natasha Thorpe - helping to facilitate this panel.

Ryan: Ryan Dempster from Yellowknife.

Berna: Berna Martin from Yellowknives Dene First Nation.

Peter: Peter Huskey

Mona: Mona Tiktalek

Natasha: Thanks everyone with being patient this morning. It is exciting that it has been almost a decade that we have been meeting as a group. I was saying yesterday that this is my favourite project every year. I like seeing the same faces coming back year after year. It isn't common with boards like this to have such regularity. It speaks to how important the work you are doing is, how you are seeing that your work is making a difference, how your recommendations are being heard, being acted upon, being respected. So, on that note, the last time we met we talked about this session having the focus on the North Inlet. But as you likely know, Diavik has been undergoing an Environmental Assessment regarding options for the pit and they have been meeting in your communities detailing what they hope to do. Gord is going to present on that. First, we want to check in with everybody if it is ok to change the focus from the North Inlet to talking about the pit. The reason this came up is because Diavik has been going to communities, there has been a lot of questions from community members on the pit. This panel is a space for us to have more discussion about what it would look like if PK would go back into the pit – whether the dikes would stay as they are now, whether they would be breached. We have an opportunity to talk about that as a part of the environmental process. I want to ask: is this ok to move the topic of discussion from the North Inlet to the pit?

Thomas: Will there be any discussion on the North Inlet or are we going to focus on the pit?

Natasha: We would dedicate a whole session on the North Inlet during the next panel. But I think there will be a lot of overlap in our discussions on both the North Inlet and the pit - for example water quality.

Thomas: If Gord remembers, the North Inlet was a big issue for Łutsel K'e. It would be good to touch upon it.

Gord M: I will give an overview of all the closure options and happy to have a discussion on the North Inlet.

Natasha: Are we ok with going ahead on discussing the pit?

Hands up for yes

August: For the mine life, how many years you figure you guys got?

Gord M: Six more - so 2025

August: We been talking for 12 years now. And one thing about that – where is all the forms that they said they were making? Because a lot of people from the first years, they are all gone. Jonas, he started here 11 years ago and now he is still sitting here. What do you do with all the panel reports? I do talk to people at home with what should be done for the mine closing part. I know they know that. Thank you.

Natasha: After Gord gives a presentation, Joanne and I have put together a presentation that pulls together the important recommendations that you have shared that are relevant for our discussion. One of the reasons we have a person here transcribing – Emma – is that every word gets down so we can always keep the words moving forward and informing what Diavik does now.

August: I know it is being written down. We should get a copy every year after the meetings.

Natasha: Just a bit of background of our process for the new faces here. We meet for the next few days, we develop recommendations on a topic – in this case, related to the pit. We present those recommendations as draft back to everyone here on Monday morning and then we get a chance to recommend them directly to Diavik. And they are all tracked. We have over 150 recommendations so far. It is a crazy long document – Myra has a copy for anyone who is interested. It becomes a report – Joanne and I pull together the report at the end of the session. It ends up including about 100 pages on word for word transcription of our session and is attached to the report. It is sent back to each of the nations about 2-3 months after the panel. Joanne is holding up the recommendations table right now.

Joanne: They are organized by topics. So for example, if we are dealing with wildlife, there is a wildlife section. If we are dealing with water quality, there is a wildlife section. So all of the main issues under closure and reclamation are in here. And all your recommendations that came from these sessions are in here as well as the response from Diavik in response to each of those recommendations. There is so much information in here, and it is available to you.

August: That is the one I am talking about. I could bring it to my community, so I can go to the band office?

Joanne: Yes

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NT & Myra: Housekeeping

Joanne: The chart I showed you includes all the recommendations. We get a report like this *[shows a report from previous TK Panel]*. There is a lot more detail here. You can bring them home and share with people and you can also see the summary of the recommendations which is from all 12 sessions. It is also online for people who use the internet and computers.

Shirley: What website can we access these reports?

Natasha: I will get back to you about this.

Presentation: Previous TK Panel Discussions related to Pit Closure (Gord Macdonald)

Gord M: If you would have told me 12 years ago that this panel would be what it is today, I don't know if I would believe you. The regulators are watching this, the other Indigenous groups are watching the work of this panel and how it is working and not working – it is making a life of its own. The discussions with the scientists, with the governments, with the regulators, people are getting more comfortable with the science asking what we are going to do to the pits. It kept coming back to the question of, 'Should we connect the pits back to Lac de Gras?', and we wanted to know from the Traditional Knowledge side to see how you would look at it. Should we cut some holes in this dike and connect it? How would all of you look at that condition and help us make a decision on what we should do?

Wayne: [question on slide 3] On the way into the camp, I noticed there is a new road by the North Country Rock Pile. The edge of the rock pile hasn't grown out towards the south, but I noticed a new road being put in there and telephone posts all the way along that. Are you going to remove that road and put the rockpile further south or is it going to stay there?

Gord M: You are right, there is a new road and you can see how this one is really close to the rock pile. The new poles are up but the wires aren't up yet. The plan is the road will move to the new one so we can re slope the rock pile.

Wayne: That answered my question.

Gord M: We will go up there on our tour. [slide 5] We are going to propose underground mining at A21, which is a new thing. We will propose the water level will come up to the edge of the dike. We would monitor it for 2 years and then we would re-connect it. That has always been the plan. This area up on the top between the dike and the pit would be constructed to fish habitat to try and make better fish habitat. One of the reasons to cut holes in the dike is so fish can use this new fish habitat. Material from underground would get removed. Some of the infrastructure would stay down there and would get flooded at closing. [Slide 6] We are resloping the North Country Rock Pile to smooth and flatten the angle out for two reasons: one is to make it more accessible for caribou. A bigger reason for us is to put a cover on this pile, the cover being a meter and a half of till and 3 metres of rock, so that it keeps all that rock frozen so that it can't get wet. So that it won't get rained on and seeped out and change the chemistry of the water.

August: Are you guys talking about the rock pile right now or? Around the big pile of rock, there is a lot of the moss, and water. How many times do you test it, how many time a year? Because I mentioned last time we were here you said you were doing it every 2 years and that is too long. All summer it will be raining, and you guys take the sample, it would be good to take samples during fall before freeze up and at spring after all the run off.

Gord M: We do two things. We have collection ponds so that any of the water collects in these ponds and we monitor those monthly when it isn't frozen. In the spring, that is when we see most of the water. If we find places where there is a regular flow or seepage, then we measure that. But we don't have seepage coming off the pile. We think the water is still developing in the rock pile and it isn't flowing out yet because the rock pile hasn't filled up with water. We are looking at that.

August: The reason I said is because this land is on an island. There is a big lake around that.

Gord M: That is the main focus of the closure. We don't want to create bad water quality that would affect the lake.

Nancy: You talked about keeping the rock frozen. What about in 100 years' time? What would happen if no one is around to deal with keeping things frozen?

Gord M: We have designed it to keep it frozen with a warm climate scenario. The cover is thick enough that even if the earth warms up, it will still stay frozen. The engineers have designed it so that it will be reasonable for the next 100 years.

Wayne: [slide 7] My question is as you are breaking down the camp, the buildings, why can't these buildings, with a lot of metal in them, why can't that be taken out during winter time in trucks instead of burying it here? You are going to have trucks going out all the time, you hauled it in, why can't you haul it out?

Gord M: At that point - after operations - we wouldn't have empty trucks going out. Doesn't mean you couldn't bring empty trucks out to transport it out, but what would you do with it?

Wayne: All of that metal – they might open up a railway to Hay River. You could get it to Hay River, put it on box cars, and bring it south.

Gord M: For reuse or landfill?

Wayne: All this metal could be melted down and used for something else.

Gord M: If it could be recycled, that is something we will do. There are three criteria for taking it out: 1) Does it have a value as is? 2) Value for community? 3) Value for recycle? If it doesn't, then it will go to landfill.

Roger: The two pits, you said you are going to take out most stuff out of the pits, but you will leave the pipes in there. Will it affect anything in the future? That is my concern.

Gord M: The pipes and ventilation underground was what I was talking about. There is quite a bit of material. Once we fill it back up with water, then there are no processes that would go on that would happen in the water after the oxygen is gone. We think it would be safe.

Roger: I know they [pits] are both connected underground, you said you would put cement or block it off? Because they are both connected – still going to go through to the very bottom.

Gord M: I will talk about this. But the cementing off was over here [pointing to map] where the tunnel comes to the surface. We will cement off here the tunnel comes to the surface so no animals or people can get down there.

Roger: I was thinking from the tunnels where the 2 pits are connected.

Gord M: I will get to that.

Jonas: You said earlier that the pit, you going to leave some stuff down there. How much are you going to fill? Are you going to cap it and then put water in there?

Gord M: PK will fill up the very bottom of the smaller pit it and then put water in it. The big pit would be just filled with water.

Jonas: Other wastes?

Gord M: That was an option we have looked at, but no one seems keen on it.

Jonas: At the community hearings we talked about leaving some of the waste in the pits. The waste wasn't pipe or metal?

Gord M: No, the pipes and ventilation would be underground, but not putting anything new in.

Shirley: You said you were putting PK in there – would you consider putting a barrier on top of that so that there wasn't a mixture with the water?

Gord M: We will get to that. [*slide 8*] There are things at the bottom of North Inlet that weren't there before we started mining. The inlet was originally a part of Lac De Gras. The challenge for us is what to do after closure. Spilled material, whether it be diesel or hydraulic oils, get deposited in the North Inlet. There are hydrocarbons on the bottom of the North Inlet which wouldn't be good for fish or fish food. That is the question – what to do with the North Inlet? People would like us to re-connect it to the lake, but only if it is safe. But we don't think it is safe, so the options are dredging it out to another part of the mine, or cover it with rock, or allow it to self-heal (hydrocarbons break down on their own), or never allow water to move in between the inlet and the lake. It will be at least 2030 where we have to make this decision. We will keep monitoring it. It isn't getting worse, but it also isn't getting better yet.

Nancy: There is so much chemicals at the bottom. Can you get the water off the top and then burn what is on the bottom (hydrocarbons)?

Gord M: We could dig it out of there, yes, but then we don't know what we would do with it. I don't know if there is enough in there for it to burn.

Nancy: Well anything that is full of chemicals you can burn it with a little bit of oil because it is a manmade material. Put it in barrels and burn it.

Wayne: I was just wondering why this question didn't come up 12 years ago? Something could have been done 12 years ago that would have stopped this situation that we are now in.

Gord M: We didn't know about the hydrocarbons; we did expect there would be metals on the bottom. Our closure plan was to never re-attach the inlet back to Lac De Gras. When we discovered it had hydrocarbons, we went and investigated probably 10 years ago and redoubled our efforts on our spill cleanup. We weren't as vigilant cleaning up spills in the pit because we didn't think they were going to go anywhere. But then we realized they were going into the inlet.

Wayne: We have a problem and it isn't going away anytime soon. Is there some way to lessen it instead of adding to this problem? Is there any way of starting to put it in to the North Inlet – new technology to do something with?

Gord M: We did look at that and we still think it is the best management of the water on the site. Using the North Inlet is the best option. The best was to deal with it at its source. [slide 9] Processed Kimberlite Containment will be another topic for a future panel. PK comes out as course 1 in a truck. Another one comes out in a pipe and is mixed with water and is deposited all along the edges and forms all the beaches. The finer bits go to the water in the middle. Along these edges - it sort of looks like solid – you can drive trucks on it. But when you get to the middle it is like toothpaste and it will stay like toothpaste. If you leave it here in a wet state it won't get more solid. It's not a chemical, it is a physical thing. If we keep in on the surface and a person or a caribou goes in it, they will sink.

Wayne: I was wondering – there has to be a way to dry this. The slime has to be – if it was in a dryer state it would be solid, am I correct?

Gord M: Correct.

Wayne: Can you not use electricity?

Gord M: We looked at that but what do you do with the dry material, how do you keep it dry?

Wayne: Once you get it dry, you could cap it then.

Gord M: You wouldn't be able to drive trucks on it because it would be like flour in a dry state.

Wayne: Maybe we should have to look at the site.

Gord M: Very good.

Nancy: The first time they were talking about it they were talking about covering it. I don't think that is the safe. You look at the bottom it is all solid rock. It got be thinking to move it there because it there is always water going everywhere. We have big storms, but it might be safer to put it in the pit.

Gord M: That was one of the ideas this group came up with. If it is a problem on the surface, and you said what about the pit, and we did the engineering work, and now we are going through the regulatory process of trying to do that. Even if we can't take the toothpaste substance out, we leave water on top where it is too toothpaste-y. Extra fine processed kimberlite is what we talked about. If we leave the slimes in place with water on top you can't get stuck in it anymore (caribou, people). Challenging for us to build it that way so that is sharp shoreline, but it would keep it safe. That is the current plan, but we want to talk about the option of taking the slime out and putting it in a pit. [slide 11] we will build bulkheads that will prevent any material moving down the tunnels.

Nancy: How much would one of these [pits] hold?

Gord M: Let's say there are 32 here. We can put 5 here. We could put all the last 3 years of mine production, into there and the slimes into there (the pit). Diavik would like to put processed kimberlite back into the pit. We want to fill the bottom with PK. It is the same material that came out of these without the diamonds and it is crushed now and not solid. It is very deep. Then put fresh water back on top of it.

Natasha: Do you want to explain how the water would keep it from mixing?

Gord M: This water at the top of the pit would still be very deep. It would be 150 metres of water. If you think about a lake in a big windstorm, when the lake gets all mixed up, it is usually on the shoreline. In the deep lake areas, you don't usually see that. The old bits of the dike would make sure there are no big waves that will go into that. We have done a mathematical model, and it wouldn't create a wake at the bottom.

Wayne: I have asked this question quite a few times before. There have been a lot of people here who haven't been out of school for 50 years plus. Anyway, I thought you could put it in feet and yards and miles. Use feet and yards.

Gord M: A meter and a yard is about the same, so I will start using yards.

Shirley: looking at the KP, the colour of the kimberlite right now is a weird colour. So that water is non drinkable. How many metres above the kimberlite would be toxic?

Gord M: It wouldn't be toxic, but not good maybe for about 10 metres. It looks like a different colour because the water on the surface is only 2 metres deep. You wouldn't see that in the pits once they are filled.

Shirley: Was there a test done to come up with the 2 metres deep figure?

Gord M: We can't test it because it doesn't exist, so all we can do is model it. What we need to be worried about is the 40 metres deep at the top where most of the fish will live. That is where any caribou would drink water, but we can predict what it will look like on the very bottom. We will have to measure that when we get there. Challenging for us is we have to try and predict what we think it would look like.

Bobby: I keep coming back to a bowl, thinking about the bowl and a bathtub. Bathtub with a plug in the bottom. You pull the plug and all the water goes down. That is how much pressure is going to be on this pit here. And looking at the future you sometimes see fishes all along the sides of the bowl. I keep worrying about the fishes and all the pressure, all that processed kimberlite and that has been one of my big concerns. We have big pressure going down to that. And once that pressure starts - when you start filling it up, the fish on the sides of the bowl, going to seep out on to parts of the lake too now. I keep thinking about that pressure, that bathtub pressure. Thinking about the ocean and how much pressure people can't even go down there.

Gord M: In your example there is a bathtub and there is air on the outside. Think about if the bathtub was sunk into the lake, and the water in the drain, it is all water and its all at the same level, if you pull the plug out, the water isn't going to go anywhere. All the water is underneath there, the pressure isn't there anymore. The pressure if you want to dive down there is always there. But you shouldn't worry about the pressure because if we pull the plug there is no where else to go. It is just walls of big rock.

Bobby: The only reason I was worried about it is the crevices and the fishers on the rock could give way from any little pressure along the rim or around the bowl. That is one of my concerns.

Gord M: We have looked at that. I agree, but the big difference is the pit level and the lake level, then you don't have that pressure. [slide 13] before we put the water back in, put the PK in, then put water back in. If we don't get that approval, we are still going to put water in there. Once we put in water, should we be reconnecting and allowing fish to come back in to here? We are saying we will measure the water chemistry in that top 40 metres, and we won't connect it unless it is safe. But what we want to know, is if you were standing on this dike, and water levels, what are you going to look at? Are you going to look at other things other than the water chemistry?

Roger: I know we were talking about capping it, but just my thought, if you do fill up with water will it affect the water levels of Lac De Gras? It is pretty deep, water levels do go up and down, will Lac de Gras go down?

Gord M: Absolutely it will go down, but it will be very small. That is one of the criteria we have to monitor. The lake probably moves between winter and spring quite a bit.

Roger: With climate change, things could change. It could change fast. Nature has its own way of changing.

Gord M: What we need to know, when we say climate change, is the concern too much water? Or is it both?

Roger: Either or both. My main concern is the main lake and its water level.

Gord M: Those are very good things for us to know. For this, the change we have been looking at is if the winds change, what would happen? We looked at what a really wet period or dry period would look like. This is only the introduction of this discussion.

Louie: Yes, one of the pits that was filled with water, we had the opportunity to see it. It it was possible to see it again it will be good. The water that was filled into the open pit they made a littoral zone so when they putt the water back into the open pit along the top portion where water touches the rock they made a littoral zone. We've seen this. This would be safe for wildlife to enter and get out of water safely. When you leave the pit the wat it is right now it may not get out safely. These are the things that were said. The smaller pit will be filled with water we had seen that. It will be good to see that again. The young man who is talking about that is correct. When the water is filled the depth of the water will be deep. In the shallow parts will be shallow. They may be equal level but that will take time but that will happen in due time, very diligently that's what I think about it.

Gord M: Right along [pointing to edge of pits] here we did say there would be a rock wall with a ramp for caribou and we have accepted that recommendation. There are places where the caribou can get out.

Joanne: We are going to take a break. This afternoon we are going to go on a site tour, so think about where you want to go on a site tour. The options are open pits and PKC, and Lac de Gras from the North Country Rock Pile.

Natasha: Yes, or we can actually go down the shoreline.

BREAK

Presentation: Diavik Community Engagement (Myra Berrub)

Myra: I am quite new to Diavik, just starting in April. I am not an expert in everything here, but I will try my best to answer, and we can keep the questions for Gord. We have talked to all our TK communities other than the Kitikmeot community, but we are hoping to get there. We try to host communities once a year. If you feel like you haven't been to the site in a while, please let me know. We apologize we aren't talking about the North Inlet today, but it was so timely you were all going to be here during the discussions on the Environmental Assessment, so thank all for being here.

Presentation: Pit Options (Natasha Thorpe and Joanne Barnaby)

Natasha: [Presented previous recommendations from the TK Panel that relate to this panel's conversations.] This TK panel has talked about how fish and wildlife, how water quality, how wellness safety all that together feeds into closure planning with climate change in a way that is being driven by the TK panel. Let's talk about some of your fears and concerns about putting PK back into the pits. And if it happens, what needs to be monitored and watched so that you are comfortable knowing that the fish are health, the land is healthy. We will probably spend the most time on question 5: If Diavik goes ahead with refilling the pit, what would you want to watch in the filled pit lakes to advise if the pit lake should be connected with Lac de Gras? Any questions? I tried to give you a little background of the good suggestions that you have given in the past.

Bobby: Before we put the chemicals or parts in to the pits, the slimes in to the pit, would it be possible if we could use only water before we put the chemical stuff under the ground, and if that level of the water stays the same for maybe a month or so, maybe if we could just fill it up with straight water and testing it out before we put the PK under the ground? And if that water stays level then maybe in a month or so, pull it back out, and if it is the same level and it hasn't changed, then maybe we will know for sure that the PK will not be draining out anywhere else underground? My recommendation would have something to think about using straight water before we put PK down below. And maybe pump it back out and when we are sure it won't leak anywhere, maybe we could start putting the slimes and what have you down below. That's what I was thinking about if that could be done.

Natasha: That would be a good question for Gord, and I have made note of it here and maybe we can revisit it when he comes. The proposal is not to put chemicals back in the pit, the proposal is to put the PK back in to the pits.

Presented PK samples in jars

Joanne: this is probably a question for Gordon. My understanding that only one pit would be proposed to be used to place the slime in. And the other pit was not. What is the possibility of doing what Bobby was suggesting to use the one that will not have any slimes in as the place to determine what would happen? Testing the pit to see what is happening there.

Gord C: I can't speak to it from an engineering perspective. I think they would have to go through another permitting process to do that in a different way. Unfortunately, I cannot speak to how it would affect it.

Myra: When the proposal was first going forward, it was looking at all 3 pits even though we don't need all that space. We just wanted the option of doing that. Through the interventions there was quite a lot of discussion and nonsupport looking at A21 (the newest and most shallow pit), so we took it off the table. We are still looking at the 2 pits, but really just looking at one. Originally, we thought all the pits would finish at the same time, but now that things have changed - it has been 20 years and operation and timing has changed - one of the pits is going to close sooner than all the others. In 2 years, we will have a pit that we aren't mining anymore. So why not take the stuff out of A21, as we are processing it, and stick it into the pit that we aren't using anymore? I don't know if we can use a test bed – it really has to do with timing, and it is the main reason we are revisiting this option. We should ask these questions to Gord because I am quite new here.

Wayne: The question that I have is there are certain tunnels connecting or drifts if you want to call that connecting the two pits. When one pit just finished, why can't there be a portion like a set charges, and block those drifts off so that the pits are no longer connected together? Then you can work on one pit to see if it works out as a safety precaution.

Myra: Will have to bring up with Gord, but again I think it is the timing issue. We want to take the stuff out of A21 and put in the first pit.

Wayne: Have you got cars down there that haul and dump – take from one and dump in the other pit that isn't being used or how is this stuff being transported?

Myra: There will be a pipeline that will need to be built for the slime to be deposited into the pit. The bulk of it.

Thomas: I know Gord spoke about doing calculations and mathematical studies in regard to how the pits are going to work with the PKC and the grey water and the natural water. Has there been any physical models built to scale on how the mixture is going to happen? It would be advantageous to look at.

Natasha: Not that I know of, but I am putting that up on the wall. I wanted to close off and make sure there are no questions about the proposed agenda or logistic questions before the site tour?

None

BREAK - END OF DAY 1 NOTES - Site Tour

Traditional Knowledge Panel Session #12: Pit Closure Options Day 2/4 Notes

Date Saturday, September 14th, 2019

Time 8:30am – 4:30pm Location Diavik Diamond Mine

Participants Bobby Algona (Kitikmeot Inuit Association)

Regan Adjun (Kitikmeot Inuit Association)
Nancy Kadlun (Kitikmeot Inuit Association)
Roger Catholique (Łutsel K'e Dene First Nation)
August Enzoe (Łutsel K'e Dene First Nation)
Jimmy Fatt (Łutsel K'e Dene First Nation)
Shirley Coumont (North Slave Métis Alliance)
Wayne Langenhan (North Slave Métis Alliance)

Janelle Nitsiza (Tłįchǫ Government) Louis Zoe (Tłįchǫ Government) Therese Zoe (Tłįchǫ Government)

Jonathan Mackenzie (Yellowknives Dene First Nation) Rose Mackenzie (Yellowknives Dene First Nation) Jonas Sangris (Yellowknives Dene First Nation)

Facilitators Joanne Barnaby (Thorpe Consulting Services)

Natasha Thorpe (Thorpe Consulting Services)

Observers Mona Tiktalek (Kitikmeot Inuit Association – Interpreter)

Bernadette (Berna) Martin (Yellowknives Dene First Nation - Interpreter)

Peter Huskey (Tłįcho Government – Interpreter) Joline Huskey (Tłjcho Government - Staff)

Thomas Lafferty (Łutsel K'e Dene First Nation – Staff)

Janyne Matthiessen (EMAB (Environmental Monitoring Advisory Board)

Myra Berrub (DDMI – Principal Advisor, Communities and Social

Performance for Closure)

Gord Macdonald (DDMI – Principal Advisor, Sustainable Development)

Gord Cumming (DDMI – Environment Technician) Sean Sinclair (DDMI – Superintendent, Environment) Ryan Dempster (PIDO Productions - Sound Technician) Emma Wilson (Thorpe Consulting Services - Transcriber)

Opening

Gord M: I looked at some of the questions from yesterday and I'm hoping to answer some of the questions that were brought up. This figure I drew is looking sideways where this being the island, and this is Lac de Gras. Lac de Gras has a bottom of lakebed, but what is underneath the lakebed is still all rock but in that rock is water. So, it is not open – if you dug a hole in the ground here, water is going to flow into it. Just like anywhere where the land thaws. What this line shows here is permafrost. There is no permafrost under the lake. But underneath the island is permafrost and it goes down hundreds of yards. So, all the water in the rock underneath the island is all frozen so nothing is moving here. But when you get out where the lake used to be, the rock is there, so if you dig a hole, the water is going to come into it. We pump water out of here and that goes into the North Inlet. That water came from the bottom of the pit and gets pumped into the North Inlet for treatment. The pits are mostly dry, that is because we have pulled out the water. When we first dug the hole, water was coming in, and keeps coming in lower and lower so that is why the edges of the pit we see are dry. So, what do you think would happen if we stopped pumping water out of here? Where would it stop?

Joanne: Lake level.

Gord M: It's going to stop when it gets to the same level as the lake. Does everybody agree?

Nods in agreement

Gord M: So, this water that comes from the earth has a lot more minerals in it. We want to fill the pit with the lake water with the best water we can fill in there. We would bring it to the same level as the lake. When they are both at this same level, the under-ground water is not going to move anymore – it is just going to sit there. Does that make sense?

Nods in agreement

Gord M: If pit water level is not at the same level of the lake, water is going to want to move in between the two, but if it as the same level then it will be stagnant. We need more water, so we would have to use more Lac de Gras water. We think it is safer to put material down at the bottom of the pit – it is more stable than putting on the surface. We have all the permits and designs to put it up here we think its just better to put it down here. If we stop putting PK on the surface, we can start closing it 3 years sooner.

Joline: Gord there was some confusion at the hearing about the amount of PK putting in the pit. Yesterday you said there was 32 tons of PKC and you are going to be only putting 4 in the pit. Just giving an example. And then also maybe if you mentioned around the edge, the PKC hardens and that once the slurry you put in the pit, then you are going to cap the PKC. How it is going to be capped? If it was described that way, I think we would have a better understanding.

Myra: Just differentiate between the PKC and the North Country North Pile on that same drawing to show there is a difference.

Gord M: I'm not going to use units to simplify things, just numbers. Right now, there is 32 in the PKC. Between 2002 and 2025 we will produce another 5. So, where do we put this 5? We have a choice – we can put the 5 in here or in the pit. We are suggesting putting the 5 in the pit, but we also talk about slimes and we were talking about taking some slimes from the PKC and putting it in the pit. We could put 5 of the slime into the pit. There would still be 28 left in here.

Natasha: So, there is only room for 5, not 10?

Gord M: No there is room for 10 if we wanted to. But we are only talking about the 5 from the last few years of construction.

Thomas: Have you guys looked at the process of the slime being put in before the PKC so you'd maybe have some settling or freezing?

Gord M: We haven't looked but the reality is the best way to do it would be to do at the same time.

Nancy: If it is approved to go in the pit it might be easier to put 5 directly in the pit.

Gord M: Exactly, if it is approved, we want to start moving the PK in there as soon as we can. Maybe end of 2021 beginning of 2022. So, we change the pipeline instead of going up to the PKC it starts going over to the pit.

Bernadette: There will always be moving of the water.

Gord M: I wasn't trying to get spiritual with the water – that would be way out of my expertise. I don't know how to convey how if there is no change in the surface, water does not move.

Wayne: You have 32 units there and you want to take 5 from it and store these other 5 units right off the bat. To get the 5 units out of the 32, you have to use some sort of dredge, but you said there could be another 10 taken in there, so there would be a total of 20 units, is that correct?

Gord M: Total of 10 with 5 and 5, but the pit is big enough to hold 20. And don't forget this is 51A, but there is another pit that we could put more PK into.

Wayne: At the end though couldn't you draw more out of the PKC and move more?

Gord M: Yes, we could. Ok so how could we close this and differentiate between hard and soft? When we were standing up at the rock pile yesterday, we were looking down on it. What you didn't see is there is a dam in there with a plastic liner that stops anything from seeping out. And there are beaches that are the old stuff that has been put down in layers. Water goes to the middle and courser stuff settles. This is built up over the last 20 years (courser stuff), in the

middle there is always a pond and then underneath the pond, that is where the slimes are. The extra fine material has stayed in the middle and it has kept growing. If we put the 5 extra in there it will keep growing. So with the closure plan, if we don't move the slimes, we have to keep a pond on here. But what we do is keep a rock cover all the way to the shoreline so a caribou or person could walk to the pond, and they would get in to water not slime, and they could get out. So if we can move the slime, the idea would be to make it all rock. But if we tried to do that now, all the rock would just sink in to here.

Nancy: If it is covered with rock, I don't think the cover will be there because it is not going to be up there because the earth is always moving, and it will be there so it will be best to put it in the pit.

Gord M: Yes, the rock cover will be very difficult.

Nancy: Best way you can get all that out, at least make the rock cover really low.

Shirley: You said that If you put rock in it would sink, but if you put enough rock in you could fill it?

Gord M: The problem is, you put it in, it all looks good, you wait 50 years, it sinks, and then you have to put more. It might take 10s or hundreds of years for that rock to sink and settle. You could theoretically fill up that space.

Joline: When I was at the hearing last week I also heard about the concern about the middle piece after putting the PKC in the pipe. You took us to the process plant, and we saw how the diamonds were extracted from the ore. And you use just water to extract diamonds out of the ore, I think what I was hearing is that the middle piece, and the type of chemicals could possibly be in the pit could maybe be harmful to fresh water or lake fish. Maybe you can explain a bit about that so that we know what kind of chemicals that would go in the pit. I think that was a concern at the hearing – so that our elders here – it would make us feel comfortable to know what is going into the pit.

Gord M: Chemicals are hard to explain. If you go to a mud puddle and you squeeze that mud, there is a water that will come out of that. The water has chemicals in it, but it is natural. When we say there are chemicals in there, they are natural that have come from the earth. When we put all this slurry in the pit, so it is water and PK together, as it comes in, it is almost 15% PK and the rest is water, so take that jar, and imagine even more water than in the jar. But over time, this gets more and more consolidated. The amount of solids become more and more. The water level stays the same, but the solid level goes down over time. This gets more and more solid, but what comes out is water. So, the water on top of that has more chemicals in there than Lac de Gras has. At the very bottom here as the water is coming up at the top, it will set up a layer at the bottom of the pit different than the top layer of the water in the pit. It is this water that might not be safe or as safe as for fish or caribou or people. But this water is going to

be way down here so no one can get there. We are saying it will be safe at the top. But even down here it's not that if a fish will be down here its not going to go belly up. So, I wouldn't use the word toxic, it would be a sub lethal effect. Water that is denser, it will stay at the bottom and not go to the top. Heavier.

Shirley: So, the water at the top of the slurry, same as the jar, as you add water to it, it would mix up, so would you add it at different times to let it settle.

Gord M: So, let's say this is the end of mine operations and we are somewhere around 2028. The first thing we want to do is pump out all the water, treat it, and pump in to Lac de Gras, then what we do is pump the water in to fill it up but with as much Lac de Gras water as we can and as little as the poor water we can. We do think it will stir up a bit as we fill it. So we will wait for 2 years, we will measure the water chemistry and what other visual thing we can assess before we breach the dike and mix the 2. So it is then that the water will be starting to release off the bottom and will form that layer between the clean water and the slime

Louis: How high is going to go up, how high is going to reach at the open pit? Is it going to be up at the top of the cone or once it mixes, once it mixes with water and PKC portion is going to float to the bottom and then on top of the process kimberlite, how is it going to mix, with the turbidity, and within the open pit if water is breached with the lake how far is the water going to seep in to the open pit? What is going to happen with the crevices and cracks and earth crust – I just want to check with you how it would affect the open pit?

Gord M: It will be the bottom of the cone? This would be so deep that the current would not mix this back up to the top. If this water was this much water.

Jonas: How deep is that cone?

Gord M: So this part is 150 metres of water and this would be 300 yards.

Jonas: There will be hot water coming out it as it is getting close to the underground. If you go underground, it gets hot down there. I don't know about this lake, any beavers out there?

Bobby: They are starting to come up now. Yes, we are starting to see muskrats. Two we have never seen muskrats. Beaver, I am not too sure, but muskrats are coming up from Pellatt Lake now. I have never seen that before. Means that animals are coming from up south and I'm sure beaver is going to do the same thing. Muskrat never before at Pellatt Lake before and they started to show up. The little houses that they build near the rivers. There are more of them coming out near the rivers now. I believe that beaver can now come up now too depending on what river they will come up and where they travel from.

Jonas: That is Traditional Knowledge. Science and Traditional Knowledge can work together to make it what it looks like. Because if there is beaver on the lake, water is going down, why is water going down? Because they are trying to block it. So maybe you should do a study on

beaver. When you say the lake is up, they check a lake, the elders, and it is full. One of the things I can't stand is the scientists want to leave some stuff in the bottom – are they going to cap it so that the water doesn't go down to the pipes and whatever you are going to leave at the bottom? The water was 400 feet down there. There is big lakes they aren't going to go up. You probably have to fill them up to make it level. They are probably going to stay like that. Do you guys ever look at climate change and what is happening? You go to Yellowknife from Dettah, used to be many lakes around, and they are all gone. Where did they go? Even Great Slave Lake is going down. So it is going to do the same thing up here. Ice is leaving, land is getting dryer and dryer. At the same time, we need to look at it very closely. I am concerned about how the animal, not only the bears, caribou, we want those things to be safe. Are these things going to be safe? We don't want to fall anywhere on the mine site. You know you look at caribou, I don't know how you look at it, but if you look out on the land, there are so many rocks out here, but you never hear the caribou break its leg or something. They know the best way to go, but I don't know if you are going to draw a – where does the water going to go back and forth? There should be maybe every 2 years after the closure, monitor it. This old man right here and I were talking, what is going to happen here? Look at the whole place. Is everything going to be gone, the buildings? You know, it is a big place. Probably take a few years to close. Where is it going to go and how beautiful it is – the site. The stockpile looks like it is harder to dump more. Maybe start now and look how it is going to work. So fill it out with something. Maybe put straight water up and see what happens, what kind of dirt comes out of the pit. And then you can pump it out again, and then put the waste down below. But the water that flows back to make the dredges, how deep are the dredges going to be? So those are some of the things I'm wondering how you are going to do it. The big lake might go down. I was just wondering about that.

Gord M: You had a good question about if those are the dikes, and we put holes in them, and how the currents flow, but the idea is when it is full, if climate change happens, the water level in the pit would go up and down the same level as the lake. So if the levels in the lake would go down, so it would in the pit. So all Lac de Gras would be dried up there would still be water in the pit. Even after it is breached.

Jonas: Dries up the big lake, the other one wouldn't dry up. Summer its going to be rainy so its gonna be heavy rain that will go in the bottom.

Gord M: Let's pretend the dike is completely gone, then all the water is connected. So if the water level in the lake is down – the level in the pit is going down, and it goes the same way the other way.

Natasha: I wonder if it helps to think about the Traditional Knowledge value that nature is always in balance. Nature is always trying to balance out and maybe that is what is trying to happen there – balancing water inside and outside the pit.

Louis: Once the water gets in to the open pit and the top of it and the water will move, and the movement of the water mix with the water and the top so the bottom water won't move that much so just thinking about the water level and the slime that once it has been put in the pit and where they put the rocks and this is how they work and they put some chemical dirt in the bottom and they put rocks and some of the put the material under the rocks. And we walk on top of that rocks. The slurry that they are going to put the PKC how it would work – I want to know if there is going to be slurry and rocks on top and we can think of that too?

Gord M: Thanks Louis. The question about Ekati, at Ekati, it is all permafrost, and the edge of their pits would be, once they fill them up with water there would be this area, so they have the same thing where they put PK on the bottom and then water on the top, but I think what you are talking about is the littoral zone, where you put rock back here to make a shallow area where the plants can grow and where there is more of a natural beach instead of a steep cutoff. But at Diavik, the water would be up here, so all of this is where the fish habitat would be, so we wouldn't have to build it up the same way that Ekati does.

Jonas: How are you going to make the fish go down? 'Follow the arrow down?' Springtime you go out in June, you go fishing, they're at about 20 feet, and if you go to July, they are about 40 feet down.

Gord M: We are saying we think fish go to 40 yards.

Natasha: Jonas, regarding your question on how deep do you think fish would go? This panel came up with that number, and that is the number Diavik is working with, that biologists agree with on how deep fish go.

Jonas: Fishing at June, 40 yards, till I reach 42, I know I would get a fish. If I want to go deeper, I go 60.

Joline: If you are talking about yards and you are thinking about feet, yards are about 3 feet in a yard. Bobby said that he knows they go as deep as 50 feet in some areas. More than that. But then you are talking about yards, if you're talking about 40 yards that is an average of 120 feet, right? But then if you come to look at - I just want to stand up here, I find that explaining to our elders back home is important because we don't know how to read and write engineering plans so photos and writing it out like this is easier. So last year we wanted to take elders and show it looks like in the pit. And how deep the fish is going to swim. So when I took Dora there, so when we went out there and I told her you see those blocks and how they go down like steps, and I told her can you visualize fish swimming deep. And then she looked at it and she said I could see fish from the side coming in because there is vegetation there and the pit here is no vegetation. And I don't think there will be no food in the pit, but maybe about interest they would explore, but on this side of the pit there is vegetation here, and not so deep, she said I could see the fish going there to eat, but not to go down in here. And they always mention, the elders always mention, we always have to because of TK we know how fish and wildlife behave,

and back home they always say we are talking for our future generation and we want our children to learn and get educated the scientific way and the traditional way. I feel like I am the in between for Tłycho Government, I have gone to school and I have worked with the elders for many years. So I have to think like a fish or a caribou or a beaver. When you mentioned beavers, but scientifically you look at beavers and they have to chew on wood, if there is no wood for them to chew, I find it really hard to see them come up here because there is no wood to chew. But we saw some areas where we drove the slope smoothing out. You look back 10,0000 years ago we were all covered with ice. It took 10,000 years how it looks on the tundra. You see all the boulders. You see how the ice slide back and retract, slide, and retract. Because the ice did that while melting, it grabbed some big boulders, and after that happened you see vegetation grow. Because we were all covered with rock. All this is like lava out here, it was all coming out from earth. Out on the tundra now you see vegetation grew. So we look at the North Country Pile, we see vegetation grow, and you think like caribou too the big boulders out there covered by vegetation. And Jonas is right, caribou is smart. They know these areas. I would imagine if some of the areas of sloped, caribou will recognize that and will go on that path. I think Diavik is also trying to slope other areas where caribou go through. One of the elders said the fish won't come down here because there is no food. So I just wanted to mention that. It is good that we are coming up with discussion here, but I think we have to recognize the people that work for our First Nations. Even getting Janelle to come back. I am really pleased with her. We are learning from our elders. Mahsi.

Natasha: Joline thank you for sharing that. I wanted to share with the panel we had a little bit of this discussion last time and one recommendation from you was that: TK holders know that fish generally goes where there is food and nutrients and oxygen, and will probably not go down to where the PK is back. The panel discussed at length the 6 yards to 100 yards where the fish could go.

Bobby: I don't know if I ever told this fish story. A few years ago, in this panel, but individually I've told this to other people as well. When fish knows these areas. These deep deep holes in these areas. This fish that we caught on Contwoyto Lake very large fish. Caught that fish and once we started taking the fish in, it kept going out. Kept getting - using 17 pounds line on those reels that I have, and 1 reel could hold little over 200 yards. And when we caught that fish, I knew it was going to take all my line, so I started the motor and started following that fish with the boat. It was taking us to the right of the middle of the lake, where it is very deep. When it stopped there, it went straight down in the hole. Straight down taking all of the line. I had only maybe 5 yards or so on that reel, and it stopped. And then tells me how deep the fish can go. Almost took the whole line again. Once we stopped at that spot, that fish kept going straight down, when it finally stopped. It stayed there for about 15 minutes. I couldn't pull it up. I can't move it up. But I believe the fish can go very very deep where they know these areas. Fish are like any other predator or animal. They know where they live, where the ends are. They go straight for that. Fish do the same. They know these areas and lakes very well and if another

predator goes after them they go straight for these holes. This is what happened with this fish. I believe they can go even deeper if that – if it wanted to. That told me how deep that hole was. Maybe it stopped at the very bottom. It stayed there not moving, right at the bottom until I started tugging slowly. And then when we got it all the way up to the boat, it carried us right back to the shore. And when we got to this shore it started trying going back to the hole. After 3 hours it finally got tired until I could get it in the boat. Fishing is the only way we can tell how deep the fish can go. That is my fish story about how the deep can go. That fish was 57 inches long by 39 inches girth. I believe almost 90 pounds. That was our record for that lake.

Joanne: You win the fish story.

Jonas: I have a better one.

Joanne: Wayne did you have a question or comment?

Wayne: Ya, the fish that can go deep like Bobby says and I've fished up on Great Bear Lake and quite a bit on Slave Lake, not as much as some people, but Bobby is definitely right. But that is on a big open lake where it isn't the same situation as what we are looking at here because Lac de Gras, even though it is a pretty big lake, it isn't exceptionally deep lake like Great bear or Contwoyto Lake so we wouldn't have that same situation here with the water depths going to be put in these pits. So, I don't think it would be a great concern to have more water unless sludge or slime or whatever on the bottom. Because this is like, the rest of the lake is probably not any deeper than going into the hole. So I want to show the difference between a big open lake and – the biggest fish I caught is 30 lbs. That was a salmon in BC, not on the big lake.

Joanne: Before we take a break, Gord mentioned something about experience with the fish and the effects of PK on fish and there is some testing that has been done, do you want to explain that?

Gord M: I was going to come back to that – that was the toxicology that was being done. We can talk about that whenever is a good time.

BREAK

Natasha: [discussing note process] We will hand them back to you during the same day. 7 pm every day. And you will have time to read through your words to make sure we get it right. We will hand you yesterdays notes at lunch. And at 7 pm tonight, check in with us we will have notes from today for you. Does that work with everybody?

Nods of agreement

Natasha: When we are pulling together recommendations and writing the report, we want to know that you have had the chance to verify or read through your words. This is the report from panel 11. As we said, every time it is sent to the lands and resources department. It sounds like sometimes you get to see it sometimes you don't. What we are thinking is we will

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print 5 copies every time and hand them out. So at least each group has a hard copy. Does that help resolve some of those frustrations of not seeing a copy?

Nods of agreement

Myra: If you would like it today, let me know and then I can get them to print a copy, I will make copies in Yellowknife when we land. We can email it too.

Natasha: The other thing we can do is that whoever wants all the reports digitally, we can email those, we can send on flash drive. We could circulate a paper and make sure everyone sees it.

Bobby: Maybe sometimes when you make the hard copies, can you make some extra so I can have 1 on my own. Back home I have lots of elders coming visiting for tea or bannock or tea. We get to looking at these stuff I bring home, and we have our own little discussion groups and it really helps me thinking about some things too. So if you could make extra copies I would really like to have one if I could because I have lots of elders always coming to my house and we have discussions about the report. I would have an extra one for each group or something.

Joanne: If there is other elders who want your own personal copy in addition to the ones that go to your office, that is easy to do. We just need to know who wants those and you can keep your own copy.

Natasha: show of hands for who wants personal copy?

Show of hands – 10 copies

Thomas: Email personally

Bobby: And also, sometimes when those hard copies get into the office, a lot of people some time don't go into the offices and look at these hard copies that you have sent. In that way, when I have my own, other people in the community has access to it, which really helps. A lot of people in the community don't go in the office to look at these things, so I just wanted to have one to share with elders and youth groups as well.

Natasha: Another thing we could do is print all 150 recommendations and Diavik's responses if that would be of interest. Then you would have a hard copy of all the recommendations. We always put together an agenda, but we don't always follow it to the exact time. In the big picture, we are hoping to get through the first 3 questions today and tomorrow the questions 4 and 5. These first 3 questions focus on some of your thoughts on the proposed closure plan, ideas for the pit, your concerns or fears or recommendations if the pits are filled, what are your concerns or fears about reconnecting the pit to Lac de Gras? What other information do you need to feel comfortable with closure of the pit? Sometimes we stay together as one group, sometimes we go into smaller groups. First question we will stay together, but wanted to check if that is ok first?

Nods in agreement

Question 1: What are your thoughts on the closure plan? Do you have any questions about changes to the plan?

August: It is my 12th season and a lot of us are with me. This year we have been talking about closing. All the time we have been here, words about what should be done, and for me this year we have been sitting here listening to what the scientists going to be do. For me I am pleased, we should do that. Because we have put a lot of words in the last 12 years. So lets leave it to the scientists how it is right now. After they fill up the one [pit], they will be testing it so they will let us know if something is wrong with is. For me I will stick to what the scientists say. Thank you.

Joanne: So I hear you are saying you are comfortable going ahead with Diavik's revised proposal and to put the slimes in the bottom and then to fill it up with lake water, right?

August: The reason I am saying the scientists, they know more than us towards that. All we do is talking talking about what we have done. So let's leave it to the scientists.

Joanne: And then at the end you said, and then we can test it. What do you want to test?

August: The water they are putting in the pit, the small one, so every year they are going to test if the water change, they will know it they are scientists.

Joanne: So after they put the slimes in, water in, then you would want regular testing?

August: Yes

Shirley: One of the tests I'd like to know at what point, how far deep, the water is good, or when does it start to change or when it is not ok for fish habitat?

Joanne: So you want different depths of testing?

Shirley: Yes, right to the solid.

Joanne: Semi solid, toothpaste?

Shirley: Yes.

Joanne: Any other general comments on changes to the plan?

Thomas: It is funny because Gord is never here when I ask these questions. I want to see some realistic testing, something to scale and how everything is going to move around. I know we had it up there and he didn't really answer it today. Today we don't have any realistic testing. So if there was a model created it would probably be a first of its kind but it would be a visual of what is happening, if the current comes in, what are the potential plans and processes for the

PK, are they going to add textile material to help sift out that slime to help it from not going up. I was talking a little but, I want to see something realistic that we can all see.

Natasha: Is there an Indigenous firm that could do that? Do you know any in Canada?

Thomas: I know there are a few universities, Waterloo works closely with the GNWT. The firm that used to do that isn't there anymore. I know it is able to be done, this is huge I want to see something like that. I know what Ekati is doing, but we are doing something but I want to see where we are going to go from there. It would be good to see.

Joanne: As much direction we can give in what we are looking for, the better.

Wayne: I was wondering – is there some communication between Diavik and Ekati and are they planning on doing something along the same line? Has there been any back and forth feedback? Maybe they are ahead of the game already.

Natasha: That would maybe be a question for Gord.

Mona: I've got a question here. Would they be cleaning the rocks before they are putting them in the pit or before they put the water? Sometimes the rock gets slimy when they are in the water, it isn't frozen. Will they be testing the slime; they could scrape it from the rock? It might have something in it. The water tank, George Marlowe used to say it is our water tank. I guess there are mines, even sports centers work around it too. Wonder if they could test it even some years after they fill it?

Myra: Test the water, not the rock? So, to clarify, they will be testing the water, but they aren't going to right down to the settled PK to test that.

Bobby: I keep coming back to this pit as well and the surrounding rock around the pit. Anywhere you put a hole in a lake, a hole is going to get bigger as it gets warmer, it will get bigger, it will widen. That pit is not going to be solid anymore, it isn't going to be permafrost under, but there is still permafrost on the side there, and once the water temperature will rise, the permafrost on the sides is going to get warmer too. I am afraid the water in the rock itself is going to melt and seep into these areas and also those crevices is going to melt around the pit, depending on how warm the water is going to be, it is going to be wider and coming in to the pit. And also, maybe for temperature, permafrost under that pit there is going to warm up the bottom of the pit maybe, around that pit.

Natasha: So this is the permafrost line, it isn't under the pit.

Bobby: But it is so cold in those crevices and concern for fishes and where there are cracks. It will be melting coming from the sides from this pit wall here. This water is going to warm up and the warmer it gets it is going to warm up all along here and maybe get into the permafrost and up here. Because it is not solid anymore, the hole. This hole is going to be warm along here

and maybe it won't freeze anymore after that it is one of my big concerns. All of the slimes and that maybe going to help defrost this area as well and slimes and PKC – I think, maybe.

Natasha: I wonder if the question is if Diavik puts PK in the pit, will that affect the temperature such that it melts the permafrost nearby?

Bobby: That is the concern.

Natasha: Let's see if the scientists have modelled that. Nancy said she likes the idea taking the PK and putting it here. Is that generally what people are thinking? Do we like that idea?

Wayne: Can't we just do a show of hands, who agrees with it and who doesn't, and why don't they like it?

August: When Gord comes back can he address that question?

Natasha: Yes. How about we follow Wayne's suggestion. By show of hands who is ok with that idea about putting PK in the pit. We have 7 hands. Ok. If you are ok or even if you are not ok with this idea, what are your thoughts about it, what is making you hesitate about it? What are your concerns or fears? Bobby raised this concern about the permafrost – he does not want the permafrost to melt.

Louis: Bobby is correct in saying what he had presented. Once we fill the pit with water it is not going to freeze. It may melt the permafrost and he is correct in saying that. I agree with him. When we had that trip to the underground and the workings how the – I've asked the question how they work with pumping water out and once we fill it with water and those areas where we went underground, I've asked question on what's going to happen with the openings in the underground once it is held with water? With the PK, being filled in the open pit and undergrounds, what would be replaced of the PKC area? What would replace the PKC area, it would be great to have a presentation about that. I am thinking of all the boulders from the North Country and the north side towards the air strip. The slope that exists now, wildlife might not climb that North Country Rock Pile because caribou like a breeze and avoid bugs so they go up these areas. With the closure and reclamation plan the island is not very big island and so if we agree on how the closure plan how it is going to look it would be good for the wildlife but on the other side of the lake it is very difficult. We can see the stockpile across the lake and there is a long mountain – Ekati is a very large footprint but on this island, it is very small and is contained on the island and I just want to share that with you.

Jonas: When an elder speaks we have to take his word and so I think about what Bobby said. He is correct in saying we have to open the pit like an ice cream cone. The water it moves, and there is a crack, maybe a crack, and that is here the water will move in to. I'm sure there is a lot of cracks in that area and the water will get into those cracks, and later on the water maybe will maybe get soft, and the water will keep falling in maybe there will be a lot of rock in that area. And maybe it will be a big open area and that is what the elders are thinking. Not that the

climate change and on even on top of the roof the material get worn out and there is another leak. The lady that spoke every in the community will have a young people and they start talking about things even about the community, what's about – and some of them laid off they are unemployed in the community and where else can get a job and what else can they do. Now today in the community we have to pay for water service, power bills and utilities to pay, and even the elders are concerned about the young people today and how they are going to survive in the future. And once the closure of the mine, what is the plan B, where can they go get a job? Is there going to be a job, here for our community in Tłycho and Det'on Cho Corporation, we will never grow plants, this is a rocky area and where there is a mine, even in Nunavut, getting jobs and they are getting gold and diamond in those areas. Now we have more population of young people. Even now our community is 80% of the Yellowknives Dene First Nation is young people. We are talking about closure today, first of all, back in 1992, when the first I was a chief at those times, and they discovered diamond and the elders were saying this is similar to Giant Mine? And we want up front compensation, the Nation saying that now they will have a diamond mine in our area. We aren't going to have – at least we get a benefit in return. I remember those times the elders say, we need a good deal out of Diavik. So that we need to discuss some kind of road block, seems like sometimes we are scared of development and 3 weeks later and who's going to develop this area, and we have to negotiate with Diavik for 60 days and after that implement with them and we have 3 areas maybe 1 million annually from them now. We are in a place with the elders when – there was a real hardship in those days. That they had to travel this far to get caribou. So every time we go on the land of our ancestors we are always needing to respect, make a fire, feed the fire, this is ancestors land and we are here today with the young people, these are the kinds of things are worrisome with us. We are here today as a panel and we are so concerned about the wildlife and that they will sleep well and live well. Animals be healthy, and the fish, and I told Gord yesterday he seen one of his friends here as some caribou on the west side. Before they used to be in this area but haven't seen caribou in this area for a while. Maybe there isn't any food in this area for them, and they know the landscape and they are cleverer than us. This concerns us, but not only Aboriginal people, we as Dene people that we really think about the land and out on the land, about caribou. Now we are just talking about the closure plan, and there are other things considered. And I want to say thank you.

Joanne: Maybe we can focus on question 2. We talked about what we want to watch for in terms of having the PK placed in the pit with the water on the top. The next question deals with how you feel about how you feel about opening up the dike in sections. That would allow water to flow between the pit and Lac de Gras. So any comments, what are your concerns about that step, and is that a good idea?

Question 2: If the pits are filled, what are your concerns or fears about reconnecting the pit to Lac de Gras?

Wayne: I don't think it would be too wise to just open up the dikes to the rest of the lake without – you could pump the water in to start off with and to see if there would be any changes and do studies on that cone there before you open it up to the rest of the lake. Maybe something goes wrong in the cone that no one will realize. But if it is tested, and everything is found to be safe, then the dikes could be breached.

Shirley: I agree with Wayne, I don't think it's a decision that can be made within the next 2 years. Maybe another generation of fish to test to see if they are ok. It's really not a decision to be made.

Joanne: You are suggesting for fish to be put in and to test those fish?

Shirley: Yes, otherwise how would you know?

Joanne: So you'd bring in a limited amount of fish to see how they do before opening the dikes? Shirley: Yes.

Joline: Last year when Diavik presented us with the jars. They did a test of the slurry and they test the water to see if the little bugs would survive in that and the results they came back they did survive and that that would be the food chain, because we wanted to know if the fish would survive, and that was one of the results that they did come back. I think what this group should do is that, in order to understand and make a decision is to know the types of other stuff that is mix with PK and if they understand that, they would have more understanding if it is safe or unsafe to be put in the pit. It is not explained clearly what is mixed in the PKC. We saw last year that they recycle the water. It is not like a gold mine where they use other chemicals that is harmful. And kind of like compare it to gold, but if they understand the chemistry of what is in here, the group would better understand the decision more about putting the PK here. I am starting to see the gap is here. Ok so if you fill the pit, and the fish go there, I am not safe having the corridor open, when I am listening here I am hearing assumption based on TK and not understanding the scientific. I think we are missing what is dangerous in the PKC. It is not as dangerous – I don't think there will be a danger to put it in the pit. I think it would be safer to put it in the pit and cap the PKC. Because they said it would be like quicksand and you would be sunk it to the building. I think that is the gap.

Joanne: As Gord mentioned, he will be doing a presentation on the testing that was done, so we will have a reminder and we can ask questions about what is actually in the paste, what is in the slime, so that you are comfortable with your choices.

Joline: And if we did leave it like this it is going to have to be monitored for years and years and years. In this case in the pit I don't think it would be monitored for very many years. You know

when you carry 2 gallons water from the lake and carry it to your camp, those 2 buckets are really heavy. I look at it as the amount of water that is going to be put back here is going to be really heavy. And the water will push the pressure down and help with settling the PK, you will have the middle mixture, but it will also be pushed down by the water. So, if you are carrying 2 pails of water, that is only 2 buckets, and this is maybe 50 tons or something like that. That would be put the pressure down so I feel that – I don't think that this would also have an impact on here because this is already naturally happening, under the lakebed, with the permafrost.

Joanne: Although, the idea of testing for impacts on permafrost is I think fairly reasonable request.

Roger: I was just thinking if you do put the PK and slime in the pit, and if that happens and they test it for the 2 years. For those 2 years, they will be testing it and all season, because in the summer, fall time, and then it freezes and then once it freezes ice moves with the wind. And the springtime it all melts, and the wind always blows up here. I know that will be tested but during that summertime, I was thinking for the 2 years the animals could drink the water, will the animals be tested too? They can't read no signs like, 'Don't drink the water.' If the animals get sick, what will the action be if that happens? After those 2 years if they decide to open it up, how wide will the breaches be? How many, on these sides? Because the water flows all year round. And if the fish do go through, the elders say they will eat the nutrients along the shallow parts, but knowing fish, they will go very deep. And if they go deep all the way to the bottom, they won't know to not pass the PK. So if that does happen, and they come back up, because usually the big fish stay at the bottom, and the big fish will eat the little fish, and the bigger the fish they carry more toxins, and then the animals will eat the fish too, like the food chain. The foxes or the birds or the bears, the wolverines, eat fish too. If they do get sick, what are the actions? In knowing nature, with those breaches, over years it will naturally groove itself because the ice moves and it moves rocks and it will probably get bigger over time and the current will probably get stronger. It will happen, just visualizing it, for the future. That is all that I thought of.

Joanne: Thank you Roger, that is great. If I can try and summarize your concerns, you are interested in monitoring for impacts on wildlife on the land as well as fish in the water, and that you want to know what is possible in terms of that kinds of testing?

Roger: nods in agreement

Joanne: Any further sense of how people feel about opening the dikes and when you would like to make that decision? Do you want to have some tests done before that happens in the future?

Nancy: It would be good testing it for long time first before you open the dikes because if it is unhealthy, we don't want to spread it to the lake. Water takes quite a few years to settle and maybe 6 years at the least of testing because due to the weather this little stuff is going to grow. At least 6 years before rushing to open the dikes.

Natasha: I am wondering if say after 6 years, they do the testing, and they say the water is good, and they put the fish in the pit to test to make sure they ok, would you want to encourage fish to move back and forth or would you say forever we want to keep fish out?

Nancy: If there is open dikes and they would naturally move between. Let's not put fish in there while you are testing, but if there is natural grasses will be in there if you let it sit for 3 years. If it is healthy enough then you can open those dikes.

Shirley: Addressing Roger's concern about wildlife, could we not pit up a temporary fence from that dike to prevent the wildlife to drink that water?

Jonas: Bobby, you think the pit, if the fish are in there, would the polar bear be happy? Wouldn't have to swim far, there would be a bunch in there. How about the big lake, if they are in the pond, they will find out, the polar bear. They will be there.

Bobby: On the main lake they would be happy. Maybe on a main lake they would be happy. Because it smells and ammonia is going to be in the water in there, smelling the hole going to be keeping the polar bear away. They don't want to dive in there if that smell is in the water. I don't think they would dive in there and dig for fish. If there was seal in there too, even seal wouldn't want to be getting in there. I would figure anyway, the smell, the slimes and the PK and the walls on the side, it is going to smell for a long time and different from the natural sediments in the lake and the sediments going to be settling down in the bottom of the walls or up to the PKC area.

Jonas: Thanks, I was just wondering about it.

Joanne: Out of curiosity, when we had the tour, did people smell different smells in different areas and is that something we want to watch out for?

Wayne: When they started blasting out these pits, I think they were using a different kind of blasting technique or substances they use for blasting. I think afterwards they changed them, so maybe they will have to take water canyons, wash down all the walls first so it goes to the bottom, and then pump that water that comes off the walls out, so they contaminate it. I think there is contamination on the walls and crack. Ask Gord which blasting techniques they use and any types of substances they used before they even think of moving fish in there.

Natasha: You are reminding me that this has come up before. Someone asked yesterday if they are going to power wash the walls, Mona asked again today. Sean and I were talking about it and there had been tests done where they put water on the walls, run down, collect water, and then test the chemistry of that water. And then they use that information to model what the chemistry of the water would be like if the entire pit was filled. I know the scientists are monitoring that and maybe Gord can speak a bit more to that.

Jonas: Just wondering, not regarding this pit, but we watched the open pit yesterday. There is another one, there is open pit, open pit, we are here, and then to the west, there is a rumor they might open another pit.

Joanne: They are doing a third

Myra: Are you talking about A21?

Jonas: Yes

Myra: We did want to get there yesterday but they were doing blasting so we couldn't go there. We have the opportunity to go this weekend, but it is up to the group to decide.

Jonas: I want to see it. Who got the contract to those things, there has to be work for Deton Cho that is why.

Natasha: The concern about unemployment earlier. It might be something to keep in your mind about monitoring. Closure and all the monitoring and testing that needs to be done over the next 20 years. Maybe that is a way to fill the unemployment gap that Jonas has raised. Sunday afternoon there is an opportunity to go if the group wants to go see A21.

Louis: Those are the issues that we are concerned about the closing and reclamation plan. We are concerned about the employment and we talked about the air strip too and the closure. I mentioned before that the air strip needs to be left behind. We had a discussion on this, and we have to have the boat available and then every summer we need to monitor the fish and the water. And those are the things we need to monitor to have our people employed. And the stockpile of the rock exists here and also when it rains the water will seep off the rock piles. There will always be seepage and it will probably flow into Lac de Gras watershed. And these things are still going to exist and probably some chemicals are going to be in the rock. And so those are the things we need to train our young people in that area so they can be employed to do the monitoring. So when we go hunting in the area – in the past when our ancestors would travel on the land. There were many people and family that used to live in the area. And today we don't see these historic sites and this mine site should be put back into the natural state as much as possible. We are saying this for the future generations so they can use this land as their hunting grounds. I just wanted to share that with you. Those are the things that I am thinking about.

Bobby: We got to remember that the fish can smell too. They have a very acute sense of smell like all animals. And that pit is going to smell. I am really curious how far the fish sometimes they can get close to the pit. Maybe that water after the breach is going to smell and it is going to leak down to the main lake. Maybe that whole area because of the smell the whole area is going to be avoided for many years. Because the fish have very acute sense of smells. That is what I was always thinking of too. And also, that once you breach the walls, the smells and taste in the water might be different. We might not detect it as humans, but the animals will because they have an acute sense of feel and smell. They know very well what to avoid and where not to go and where to go hunting. That has been one of my concerns too. If they breach that too early and it still smells the fish will be avoiding that water. The PK and the slime, they have smell too. Everything has smell. So maybe the fish will be avoiding it. Also, if they are proposing the fish to put in the pit, I am curious to see how healthy the fish will be for. That is one of our concerns. Maybe they won't be healthy. That is a big concern for all of us.

Natasha: Nancy suggested 6 years of monitoring. I wonder what you think in terms of years would you want to watch fish in the pit?

Bobby: I think we came up with this answer a few years how many years we would want to monitor. In the reports as well I think.

Joanne: I think the idea that several people have suggested that we put a limited amount of fish when the pit is filled in that we monitor those fish before we allow any other fish from Lac de Gras to move in and out of there. A specific number of fish that can be caught and tested would provide some comfort for people that the habitat in the pit will not be harmful. We need to know that. So how long should we monitor those fish if that is a possibility?

Bobby: Well whoever monitors that fish, fish are going to be harassed in there, they won't be healthy in there if they are being tested on and on and on. I am thinking they won't be healthy because of man's ability to harass them. Same as all the muskrat, wolf, wolverine, that is harassment, they aren't going to be healthy again after tagged collared poked and gutted while they are still alive. They aren't going to healthy anymore.

Natasha: So if it wasn't DFO or the government, if it was you doing the monitoring, how would you monitor them inside the pit so they wouldn't get harassed?

Bobby: They have monitors everywhere in this building. I bet you could have underwater monitors. We monitor ourselves here in the building how we move around. If you put some kind of monitoring equipment down there, humans wouldn't be touching those fish, it would only be the electronic monitoring equipment would be the solution I am thinking. Instead of people netting them and poking them, how fat they are. Monitoring with electric monitors might be a solution if scientists can watch them how thin or fat they are getting, what type of colour is on their skin, maybe scientists are coming up with all kinds of solutions for monitoring

the animals too. I think they can come up with underwater monitors, I think they do have underwater monitors as well.

Natasha: Everyone else, how would you monitor your way?

August: When my partner was talking about the fish, they aren't going to take fish out of the lake without sampling them. When they catch it, you take sample, and then you are putting it in to the pit. They will know if the fish changed or not.

Joanne: So, you would catch them?

August: Before you put the fish in the pit, you take the fish out of the lake, take a sample of it, put it in the pit, and then after 1 or 2 years you sample it to see if it changed. I am not a scientist; they should know how to take the sample. The second part they try and have to catch it and take a second sample out of it.

Natasha: At the fish camp, the aquatic effects fish camp, what I understand is the way you know the fish are healthy are you see with your own eyes, you look at the liver and the heart and whether the tissue is mushy. From your TK expertise, then you can tell if it is a healthy fish. But I'm wondering if that would be same approach?

August: Tasting the fish when we are there it tastes so good. But another way is to take a sample, we get a report about it.

Joanne: So you wouldn't use tasting?

August: No, just take a sample of it.

Joanne: Relying on science?

August: Yes, and the visual.

Jonas: Anyway, I like the TK and science. The way the movement, but for the tasting and all that, I think that would be the TK way of tasting it and see how it goes. See what kind of – maybe if it is going to be hot water, it might be warm.

Nancy: After it had been tested for so long, when I heard about fish being harassed, I'm like after testing it for so long, if we know it is health, then you can open the dikes. The fish will naturally will go around, but let's find out first if it is healthy. And then the fish will naturally go in there.

Louis: We do fish sampling in our land, people, the scientists that come along with us that do the testing of the fish. If the fish was not healthy, they would know. And how long the fish was unhealthy – how many years – they know that. The types of sampling in our communities, then we know. Twice have good healthy fish in our lakes and so how long the fish is unhealthy. If the fish is not healthy and then we do the sampling of the water in our lakes. So, they do fish

sample and they use and they use the fish head and the little bone out and they know the age of the fish, and so that's how we know things through scientists. The old timers used to say this time in the fall time and the north wind and the deep water, they will go into the deep water and the north wind comes in and it is cold for us. And that is how fish go into deep water. And a little warm out they go in deeper and they know where the warm water and hot water, so the fish know that too.

Wayne: I just wanted to say that the fish wouldn't be going in there soon anyway because there is no food in there for them. There has to be something on all these tiers so that they can have something to eat to survive on. There is no use throwing fish in there right away. Might have to give 2-3 years for the plants to take hold and grow.

Natasha: In a previous session, for those that are new, we brought out maps of the pit and we broke up in to 2 groups, and each group and indicated on this shallow area of the pit, how it might be landscaped to create good fishing habitat. Some rearing areas, some general areas, to encourage nutrient vegetation growth. I'm wondering now, that Diavik is proposing to put PK into the pit, would you want to create fish habitat? Would you want to encourage fish to come back into the pit?

Nancy: Naturally fish will travel wherever they want, so they won't travel if there is dikes there, if it is healthy, they will naturally come around if there are reefs.

Natasha: You made special areas about the North Country Rock Pile area for the caribou to come. Should Diavik make the same effort for special areas for fish to come back?

Nancy: if it is healthy again and if they put the reef out there, that would help grow because it is all rocks.

Joanne: One of the questions is if we want to put fish in there for a period of time before we make any decisions about opening it up to the lake, those fish that we put in there will have to survive. Can we do both? Can we build the fish habitat that we planned for in that previous session so we can ensure the fish that we do put in there have an environment to survive in, and wait to see how they do before we make the decision to open the dikes?

Wayne: I think once you put the habitat in for the fish, if the habitat doesn't survive, I don't think the fish will survive. That'll give you an idea before you put the fish if the habitat dies.

Natasha: My question is, now Diavik is proposing to put PK into the pit, does that change how you feel about making those special fish areas?

Wayne: I think they should.

Joline: From what I have been hearing, Diavik and their amendment to their water license proposing to put PK into the pits and also filling it with water and monitoring it for 2 years. That is what I heard from Gord. And within the 2 years after it is monitored with not opening the

dike, monitoring the water for 2 years with vegetation already being there and filled, that is where it would also be monitored before opening the dike. You had a question about if it would be safe to put fish in there before opening the dike to see if they could survive. From my experience and from experience in our region where they have been doing fish and water sampling, we invite participants from the group and community members, elders, women, and youth, so they would be able to be at site to test with scientists. So I think here that we are unsure, I think if you are participating with the scientists, I think your confidence would be higher because you are able to translate your TK to the scientists, and in turn they would be telling you what they are doing scientifically. I think it would be good to participate for the elders during the all season monitoring of the pit so you would know and build your trust I quess with Diavik. Mahsi.

Janelle: Could there be a simulation created so that we can visualize so that we can see the worst case scenario and the best-case scenario and what the scientist thinks it would look like over time. Would there be a possibility of over population before the open dikes? Fish like their space, compared to Lac de Gras and then put in a small area. I am expecting a simulation at our next meeting. A time lapse of what it would look like after 2 years. It is hard to translate these technical terms to elders. The translators can break it down in Tłįchǫ so that I can understand it better. I often listen to translator because they break down terms for us. It gives our elders a visual aid and we can see what it looks like afterwards.

Myra: To carry on with that, I am responsible to put something together like that. I don't know the best option – 3D model where people can pick things up, or like a video. Maybe you and I can take some time to talk about that. This is a 3D model of the rock pile, so if you look at the slopes it is more gradual, is something like this helpful?

Bobby: I keep hearing putting fish in the dike before they break the dike. You have to remember that fish also need oxygen. Wintertime, I do lots of ice fishing and I find lots of lakes that have very little oxygen all winter long. And when we do open those lakes, fish come by the hundreds trying to get to the oxygen. We catch so many of them because they find our hole, that is how we fish. They also need oxygen. If you don't breach the dike, you are going to have no movement on the water and the fish are going to be starving for oxygen in that pit if you don't breach the walls. If you wanted to put the fish in there, you need to think about the winter and the oxygen they need. If you want to put fish in there, open the dikes, you need movement of the water and oxygen. You have to think about that too.

Wayne: My question is more to the facilitators. The fish that I want mentioned is the one that Bobby was talking about. Can we take time at one of the end of the days to watch this program he has taped up. Is that possible?

Natasha: Yes, we could put it at lunch or evening.

BREAK

Question 3: What other information do you need to feel comfortable with closure of the pit?

Thomas: Data. We need to see what they are going to with the pits upon approvals. Toxicity, what the slime is doing on the bottom – if it's moving or if it is coming into the fresh water.

Natasha: That sounds like we need scientific data. From a TK perspective, what kind of information would you want to feel comfortable with the pit? What is it that makes you feel comfortable on your land? What do you see?

Wayne: I'm not so sure about what makes me feel comfortable, but I know that running over and going into a 600 feet deep hole - that wouldn't make me feel comfortable.

Joanne: Obvious safety issues with places that have been interrupted by mining, ok.

Mona: For the pit, would it be frozen solid during the winter?

Natasha: Do you mean the PK or the water on top, the whole thing?

Mona: It's the water that is frozen on top. For safety for hunters.

Joanne: For safe travels.

Natasha: Is the question is, is it going to be the same temperature in here as in Lac de Gras?

Mona: Yes.

Joanne: Would you expect to see animals coming back to the area?

August: This question you give us, nobody can answer it because if we leave here, we will never see it again. In closing time, I don't know what it is going to be like. I don't understand what you mean. Somebody has to come down here every summer to monitor around the pit. Like you say, if you travel by yourself on your land, we hope to have a good day travelling. That is always what we have in our mind. So for this, it is very hard. After it is closed, only scientists is going to come check it. That is all I have to say, for us anyway.

Bobby: It's really hard to feel comfortable because this is not only the pit our people is dealing with. There are many many pits around this area. The migration route of our main caribou route, the Bathurst herd, the pits want to put their PK in to the pits. I'm still really uncertain the future is going to be after all the mines are closing down. It's not only this pit, it is all the same pits. How many pits do you have now including all the other mines? All across the migration route. Hard to feel comfortable thinking this way. It is really hard question to ask for me right now, because it is all uncertain right now with all the mining activity. Looking at it now, the caribou, the caribou migration route is very disrupted. They don't want to come south anymore. A natural forest fire, because of that, the caribou don't want to go in those areas because of climate change. Stuff like this contribute to climate change. I don't feel very

comfortable right now thinking, how do I answer this? Because I am feeling very uncomfortable right now. The only way I might be a little comfortable is the mining company giving me a complete certain answer to everything we want to keep clean and pristine, breathable, livable, enjoyable, the way we have been doing it for thousands of years around these parts. The environment that we live in, it is really hard for me to think about being comfortable. I really don't feel comfortable with all this mining because it is all water that is going into a hole and all the other rivers that are going into the ocean as well. As you know all the rivers in this part of the world flows north. All the major rivers go north into the Arctic ocean. That is because of mining activity and disruptions what mining companies are doing to the caribou herd and the animals we have in our area. That is uncertainty to me. I have many grandchildren to think about. I want them to be able to live like me with all the healthy animals I have lived with for many years and living out on the land. I have many grandchildren, and also thinking about my great grandchildren I want them to able to live the same comfortable life I have had. I want that to come back with caribou herds, because of climate change, we have microplastics in the ocean right now, it is very uncertain for me how our future is going to be, because our ocean is contaminated with other chemicals as well, dropping in to the ocean and dropping into the land where we come to enjoy and live by. We want this to be our future for our children and grandchildren. We say this every year. All the mining companies and environmentalists say this too. We want to enjoy the life we have lived with and which have sustained us over the years. The sustenance that we have collected, and we have enjoyed. We were very healthy before the mining companies have come to this part of the world. Not even this part, look at the climate change that is looking at now. Every country that we know of, never had floods or fires, and all these big cities and these countries, they all have infrastructure, garbage and everything all floating down to the ocean. Without that ocean we cannot have any clean air again on the mainland. Everything that we depend on comes from the ocean, comes from the water. Not only from the ocean, but from the land that we come to depend on. The hardest question for me to answer, how to I feel comfortable? I don't feel comfortable at all. It is hard to answer because of climate change. Climate change is done by not only by industry, knowing how climate change it was very very natural long before mining has come. We know that climate change that has been going on by millions of years. That is how we live here. What was there before us? The mining has industry all over the world contributing to natural climate change. Volcanoes, tsunamis, those have been going on for millions of years. That is nature. But now it is fueled by industry, industry being the way it is and the way it has been monitored in the past. It wasn't monitored well in the past. I am happy now that we can speak in groups like this in all parts of the mining activity now. The mining monitoring now that gives us a little more comfortable speaking about it. I feel comfortable speaking about it. But being comfortable about the mining that is destroying the land, breaking up the land, and leaving their garbage behind. And to me, that is my comfort that I wish to say a little bit about and something to think about. We all know this as elders. We need to keep this going for thousands of years still. We have great great grandchildren and we want them to enjoy the life that we have enjoyed

for many thousands of years. We want that to come back as well. That is my uncertainty and difficulty answering that question.

Joanne: It isn't an easy question that's for sure. Thank you for taking that question apart for us Bobby. What does comfort mean to each of us, and are we saying that we are willing to live with certain things, and there are other things we are not willing to live with, and what are those things that we aren't willing to live with? Maybe that is the bottom line. What would be unacceptable to you is one way to think of it. Relating to water, relating to fish perhaps. Other things that are affected by the creation of the pits and the closure of the pits.

Shirley: I was just thinking of the fine PK they have in the middle, they said if they don't put it in a pit, they will cover it with water. How much water? After so many years it dissipates, how many years will they monitor it and ensure that the water levels will be at a good level so that no one dies or whatever? If water is above, how do you prevent animals from drinking that water? My concern is the sludge and the amount of years that monitoring will happen to ensure it is safe?

Joanne: Myra did you want to address the question of how long Diavik will be hoping to monitor?

Myra: There isn't a definitive answer to that. Obviously if results come back and they aren't acceptable we will continue to monitor. Our hope is we can eventually have clean water at levels that are acceptable. But it is an unknown right now. We are saying we will monitor in those 2 years, but it will really depend on the results. I want to say, we aren't going to just say 2 years and then leave.

Joanne: Maybe think about what level of safety are you looking for? Do you want to be able to scoop your cup in the pit water and be able to drink it without any worry? Is that an objective that you want to meet before we let Diavik go? Do you want to know that the fish have not changed as a result of the pit and the adding of the slimes to the bottom of the pit? Is that something that you want to see in terms of acceptable impacts or demonstration of no impacts on fish? What is acceptable regarding fish? Regarding water?

Nancy: If we put water in that pit and sit there for awhile and it has no more oxygen, so best try to put those dams down so that the water can move around before the pit gets stale.

Joanne: So, you see that as a good reason to breach the dikes?

Nancy: Yes, so it doesn't get stale.

Wayne: That water there sitting on top of the slime is something like 1,200 feet deep is what Gord said? Ground level to the bottom is how much?

Myra: 630 metres.

Wayne: Close to 2,000 feet. Pretty close. So if slime only comes up to half, and then you have water there, that slime is going to be that cold being that deep, and the water is going to be so deep and so the bottom is going to be very cold, so it might get warm right near the surface, but I don't think it's going to be warm if you take the temperature of the water say, 20 feet down. I don't think it is a big problem of the pit and the water warming up. I think of putting the food in there to see how it fares before we put the fish in would be a good idea. We know that if the food doesn't survive that the fish isn't going to survive. Earlier Bobby brought up the oxygen in the water and there was a fish kill off with hundreds of fish on the shore. The foliage on the lake grew up and the lake is fairly shallow, the ice went down, the oxygen ran out for the amount of fish. So, it was a fairly big fish kill. But if someone put a certain number of fish in the pit that could be sustained, then you wouldn't have to worry about the oxygen. I don't think that will be a big worry.

Jonas: You're talking about Pontoon Lake, happened a few years ago, all the fish died in there? It is hard to say if we are comfortable or uncomfortable. We don't want this to be another dry mine. That issue is not going to go away because you use different chemicals. But here there is no chemicals. Do some samples and come back to us in a couple years to tell us what happened to the fish and the animals. We aren't the guy upstairs – he knows everything. Test it out. We could give you a few good suggestions right now, something that is hard to come by. Bobby said all the things that we are going to suffer by, with the future generations. We don't know that, but we think about all those things. How are we going to make it work? Right now, I am thinking about what else can we do. All the other things that Roger mentioned, it is unknown what he says. Because it has never been done. So that's something to grapple with, trying to think what a possible way of doing things. If we don't test it out, we aren't going to know. That's all I'm thinking.

Natasha: Does the youth have any ideas they want to share?

Roger: It's a pretty hard question thinking about it. To feel comfortable, growing up since the mine life happening and when it started, that was when exploration happening, and I was just growing up with my grandfather. I want to see things – we used to have caribou outside of Łutsel K'e, I want to see them come back. Nowadays things are different, with climate change and things. To feel comfortable, I want the land to be as it was before, but it is not going to happen, because it has already been impacted. Life is like a river; it only flows one way. We can't go back and change things, we have to work with what we have now in the present. That is why we have this panel to discuss this, and to try our best to make the land back like it used to be as much as possible. What you brought here, put it back. That's what you said first, but now when it comes to closure, there is still going to be things left behind. It is just like what you say, and now it is happening, and the other thing I think about is the animals and how the land is shaped now is going to be different. Wonder if the animals are going to be healthy for future generations, the fish, the birds, even the landscape. We aren't sure how it is going to turn out

after the mines close. But it's up to us know to make the decisions now and use traditional and science. I just want to things to be like back they used to be, but they can't now. It is very hard to feel comfortable 100% but at least we have a say to make it the best we could, put the land back as normal we can. With all the impacts around the communities, we never know what holds in the future. We got to live one day at a time and deal with things. Like Bobby was saying, he made me think about that, and makes me think what he all said, and it's true. I just want the animals to be health, and the land, and the fish, but you can only do with the best of our knowledge and science for now and we will try and work with Diavik and my other thought there is still going to be mines popping up and we are still going to be impacted. It isn't going to stop yet for years, it's hard to feel comfortable 100%, but we'll try our best from our groups and hopefully with the other mines, we should try and share information, they are probably stubborn with that, but what can we do.

Applause

Janelle: Going back to the 3rd question what other information you need. I like what Thomas said about data and who is responsible with what – monitoring, will it be up to Diavik, where will the info go, how will it be shared, who will do it? And having that information in common speak. Having that we can translate – not everybody thinks like a scientist, but when you break it down in plain speak it is easier to share with younger kids. I am often sharing information to the young people in the community and being able to translate it from an elder's perspective to a young kid. I don't think anyone will be comfortable with the closure. You see so many people dying of cancer. Both of my grandparents died of cancer, I don't know if it was to because we are located near Ray Rock, but we were in the area. Bringing it back to the reality, not just in a scientific way, but bring it back to traditional knowledge. Unfortunately, mining is a part of our history, and if we can make our footprint smaller here than Giant and Rayrock, that is a big thing we are doing for our future generation. If you look at the north, there are so many mines coming. Caribou playing grounds are getting smaller and smaller, and it is the same with fish. They have less places to travel. Really taking into consideration that this is impacting human lives, our history, the way our culture will be passed down generation by generation. What about in 50 years will there be no caribou? How will we show our youngsters how to tan a hide or make moccasins? My grandpa was a chief, and I saw a transcript of when I was young. He was talking about me when I was a little girl. He had to take care of me two weeks on, two weeks off because my mom worked up at the mine. She was making \$9.25 an hour, he always wanted to make sure we have compensation for this mine. But if we can make this place as close to a natural space as well can I feel like we are helping what the leaders who have left us wanted. We are fulfilling the legacy they left for us. Have that same image or how we want that mine to look like.

Applause

Jonathan: I don't know what to say about the closure, but it is hard to deal with. What the elders say, it is a hard decision, and I don't know how we are going to do it, but let's take our time, a couple years, work together with the scientists to figure it out. When I was young, we used to have caribou come to Dettah when I was young. They would wait on the ice. Ever since the mine open, we haven't seen caribou from Dettah, I think it is because of the mine. We saw caribou in summertime when I work at the mines. When they are on the road, the truckers stop, we leave them be. We would sit there for hours before they move. 2016 at Ekati we see a lot of caribou back and forth in the summertime. This time, wintertime, went caribou hunting, hardly saw anything. Back in the older days we used to go caribou hunting at the end of the road in Dettah. Now a days you can't see caribou now. Travel 6, 7 hours north to go caribou hunting. We have to go get caribou tag at the band office now, 2 tags per house. Back in the day we used to get whatever we want. Now the numbers are low, the dust, is polluting the air, their food. The mines are making it worse; it is not just caribou. Last couple weeks when I was doing a fish catching, we were doing a fish tasting. We open its stomach, we see parasites and the one thing we can tell the fish healthy is when it is soft, it isn't healthy. The colour of the fish. I can't remember what the lake is, had to go by chopper. Anyway, I was there looking at the fish, some were healthy, some weren't. Their meat is tender, like bright, but some of them wasn't bright. Those ones weren't healthy. Closure even put fish inside of there, I think it is still going to get sick because going to the pit. The pit, the truckers, they break down, some hydraulics they leak, and diesell fuel, around the pit, it drains out to the bottom. The pit water or the PK is still going to be contaminated and dirty with the fuel. Either way we look at it I think it is still contaminated. Results with the hydrologists, if we work together with the geologists in the camp, maybe we can figure out a way to keep it. Work together as one group and see what happens there. Mahsi.

Applause

Natasha: does anybody want to respond to the good strong comments by the youth?

August: Thanks for the youth with what you were saying, I am very pleased. This is for your future that you are saying this. So, I am very happy. Mahsi cho.

BREAK

Gord M: I am here to talk about a couple of the questions that were brought up. One was toxicity and one was permafrost. Does anybody remember why we did the toxicity testing?

Bobby: Because of the fish habitat and the habitat around the major water – ponds and we were concerned about the fish and all types of fish, microbes and what have you that were living these ponds.

Gord M: We were looking at a specific pond for PK. It was what was in the pond. We started on this question on the PK, and this morning I was talking about an option of the pond. You asked us, would it be ok for fish and the bugs in that pond to leave it there? So, what we did – water is very shallow – we took some of that material and we tested that material. So, what do you test if they live in that material? Well fish won't live in that material, so what we did is we test, and they put fish in a jar that was shook up. Little fish in there for 28 days and measured how many survived and how did they grow (heavy and length). So, taking the fish and putting fish in water like that, there was no difference in the fish in that water and clean water. So that means there is no effect to fish. Because we were looking at seeing if the fish got in the pond, what would happen to them? And we found that they would be fine. So we also looked at algae. For those, we can take the slimes, get the water that is in there, and then see if the water flea and algae can live and grow in that material. Results were it was fine in the pore water and the leachate. No difference in living in that water or living in Lac de Gras. Then we looked at 2 of the benthic invertebrates. They live at the bottom so they would be affected the most if there was an effect. Now the test is right on the sledge itself, and when it was only that PK slime material, there was reduced survival, but if you mixed half that, half sand, they were fine. Same thing with this water flea, when it was just the slimes, there was a reduced growth rate. They lived fine, but not as great as others in other materials. So, what we concluded is this, it isn't as good as Lac de Gras, but it would support an ecosystem. That was for a pond like the PKC. If a fish went swimming down to the very bottom, he'd be fine. That is the information that we have tried to take from this.

Natasha: I think it is important to understand that it wasn't Diavik that did this research. Diavik provided funding to University of Saskatoon to do this work in their laboratory.

Gord M: It is hard to read but it is there. We can do things like this again if there are other tests that can help. It is almost like a TK test because it is something you can see like a fish.

Wayne: How come you didn't show this to us in 2016?

Gord M: We did. This is a slide deck from 2016.

Natasha: This specific recommendation came from the TK panel that you wanted that toxicological testing to be done. It's good to remind yourself that this leads to recommendations and action that we can track.

Gord M: The next step, but we are talking about for wildlife. How do you test for caribou? You aren't going to subject caribou to this start of testing. Ok so next question about the permafrost question.

Natasha: Bobby can you re-ask your question?

Bobby: The reason I was thinking about the permafrost, warming up after this pit – once that pit is – it's open now, and it is going to be warmer than when it was opened. You have all this open pit here; all this area is going to be warmer than the rock around it. So, I am concerned about the warmer air working itself and moving around the cone, and maybe getting warmer into the fissures and cracks, and maybe the permafrost is going to change again.

Gord M: having cut it out yes in the summertime it is warmer but the rest of the time it is colder. The bottom is probably the colder it is freezing back in the wall as opposed to melting back into the wall. This is the tunnel that we drive down, there is an obvious area where

Bobby: The other concern is that the lake is frozen, pressure going to be pressing down on that cone as well. I know it is going to be frozen on the top and the pressure when the pit is completely frozen, there won't be any oxygen in there, more pressure. And that is what I meant it might be warmer in the future due to this cone. What I see now is not going to be frozen with all that PKC and whatnot down there.

Gord M: It will never be permafrost down here. And it never had been.

Bobby: But the rock has been frozen?

Gord M: No, because it is underneath where the lake was. So, the place where we see the permafrost change, we haven't seen a change yet, but we would expect it to be in the active zone. That depth of thaw is where you are going to see a change in the permafrost. You will see that annual thaw zone go deeper every year. Since we have been here, we haven't seen a change in depth of permafrost.

Natasha: Is Diavik monitoring permafrost?

Gord M: Correct, we monitor it very frequently and for the last 25 years now.

Natasha: Another question was would the water freezing behaviour, once the pit fills with water, be the same in the pit as in the lake?

Gord M: We think these will act like some of the bays. We think it will thaw earliest and freeze earliest. Where we breach the dike there would be current there and that would be where the ice would make it most difficult for safety.

Rose: And if you guys leave, how long after that you are going to monitor this whole area?

Gord M: It is a really hard question. From the time we are done it will probably be 20 years, to about 2050. And then it depends on what we are finding. If it all looks good, we hope we could stop. But if it isn't not, we will keep monitoring if there are still a lot of questions.

Thomas: Some of the questions I raised had to do with modeling and pit water. Have you tried doing to miniature scale models to turbidity and whether the toxicity will move up?

Gord M: Once it is breached it isn't a still lake, but pretty much at the bottom. But no, not sure how you would do that. The closest thing we have done is the video how this section would work. The jar and that video is the closest thing we have done to a physical model.

Applause

Joanne: I guess that means that was good news. That is the first time I heard Gord say they will be here for at least 20 years after mining operations finish. To me that is encouraging. That is more a realistic timeline of 2 years in terms of having firsthand information available for what is going on after closure.

Myra: There is a reclamation period after that. There will be work still happening after 2025. It's not like we are going to disappear.

Joanne: So, can we get back to the difficult discussions we were having and maybe focusing on what is unacceptable? We talked a lot about what we would like to see, what our values are, and the fact that there is not a lot of comfort right now. There is still a feeling of a lot of uncertainty. What does comfort really mean in terms of our culture, our beliefs, our values? To help make sure what action is taken by Diavik and what kinds of actions we can recommend that would improve our comfort with what is done, perhaps we could look at the flip side. What is unacceptable to us? If we get clearer on that, that also provides important guidance that could result in action from Diavik that would lend to comfort in the future. What would be unacceptable?

Louis: At the beginning of these sessions, we had many elders involved amongst with us from Łutsel K'e, Dettah, and Behchokò and Whatì, and all the elders that used to be concerned about these things. At that time we had people from Tłıcho, the recommendations would be held in our discussions. At that time they wanted to put water in the pits but extracting all the rock in the opening, maybe if they are putting the waste rock back in to the pit, putting the waste rock back in to the open pit and reclaim the area. But since then the talks have changed to putting water in the pits. At that time the elders were talking about the waste rock was being put back in the open pit. Now we are talking about putting water into it. And in the past the discussion amongst the elders, they were saying that open pits be filled with waste rock and those are the stories I wanted to say.

Jonas: I remember some of the elders talking about are you going to take some rock out, they said yeah. Where are you going to put all those rocks, the waste? They said, 'you see that hill on the barren lands, it won't be any higher than those hills'. But a few years later, the waste looks like a mountain, you know. I don't know how that happened. At the same time Louis said once you put the rock out, put it all back, in the cone, and cover up with rocks, with cement or something and put grass on it. That way caribou can walk over. We don't need to put PK in there, let's just make it natural. That is what the elders said in the past. I don't know where this

water talk came from. I guess from the scientists. But I don't know if it is going to work. I cannot accept. Mahsi.

Joanne: Why was the waste rock not put back into the pits, Myra? Has to do with money? I believe it has to do with the cost of doing that plus the fact that they moved, underground, after they finish mining the pit area, they started mining underground, and at that stage, they would be blocking off access to the underground tunnels. And wouldn't be able to get the diamonds out, was another reason they didn't follow through with putting the waste rock in the pits. But we could get Gord to address.

Jonas: Why would you want to keep the underground open? There isn't going to be anything going on down there.

Joanne: After the pits were mined out they moved underground. So they needed to get to the underground through the pits, so that is why they couldn't start filling them up.

Natasha: They had to put it somewhere when they mined underground, so they put it on the waste rock pile. So then they would have to load it back again and then dump it, moving it twice.

Jonas: Well I saw the smaller pit, the big truck there to get the diamonds, take it up to the plant. So that is not going to go on when it is closer? Why would they do that then, keep it open? Why would you want to keep the culvert open?

Joanne: They are still taking diamonds out using that access.

Jonas: See that is one of things they don't show on the cone here. I don't really know. I'm going to draw it up. They put a tunnel here to get underground. But let's say here, there is a culvert over here, we don't see that, they never told us those things. Like Giant they had tunnels all around these, it was under Dettah, are they doing the same thing? Is it like a beehive down there? They don't tell us that.

Myra: I am still not quite sure on the exact question, but the tunnel you saw enters over here. Can you see this darker section here. That is the kimberlite pipe, but the stuff around it is going to into the North Country Pile right now. So this is why we first do surface mining, get the stuff on the part, and we only want the kimberlite portion. But to get access to this, you need to start excavating a bigger and bigger hole, but we really only want the middle section. At some point, it doesn't make sense to make the hole wider, and that is why we start going underground. So they start building these tunnels. Then we start accessing the kimberlite this way in these layers. These 2 pits right now are connected by this underground tunnel. Gord did mention yesterday it would be blocked off before filling in one of the pits.

Jonas: See you just go down to get the diamond out, but I didn't know there were tunnels. So they see some sign of diamond, and take it out?

Myra: Yes, because the diamonds are only in this section. They will build a road, do a blast, pull the material out, load it into trucks, and then they will load up larger trucks, go to the processing plant.

Jonas: So that will all be flooded?

Myra: Yes, the road tunnel will be filled up. They will be separating the 2 pits before one is filled up.

Wayne: You can see that green line up top there and the other ones down below there, the red one, close to the first cone here on the left, there are places where they are going to build bulkheads and they are big bulkheads so that nothing can get one to the other. They are building bulkheads instead of blasting.

Bobby: I'm wondering, with all those tunnels in there, I wonder how stable the walls are or the around those tunnels. How stable are the walls around the tunnels around the cone and the bottom? Are there any water seepage coming into these parts from the rock itself?

Nancy: Last year we went underground. There is constant water being pumped up because the water is coming in.

Joanne: That water is brought to North Inlet and treated. It is the water coming in from the walls.

Bobby: That's what I mean about the fissures in the walls. How stable are they?

Joanne: There is lots of water in those rocks and that is what Gord was explaining. The dots represent water. They had to design a process where they are able to deal with the water because if they didn't constantly pump it out the tunnels would be flooded. As they pump it out it is sent to the North Inlet.

Bobby: My concern is about the fissures. Would it be fissures as well, lines instead of dots. Lines coming near the bottom of the pits or how much – how stable is it going to be after it's been filled? And is it going to be frozen again after it – that is what I'm considering

Joanne: Right, but it was never frozen. The permafrost is not in here. It ends here, where the island is. As you remember, this was created in the lake. All of this, there is no permafrost in here.

Bobby: How did all that little dots of water get here?

Joanne: It has never been solid rock, it is natural.

Bobby: Are those dots [in Gord's illustration] – how many are them are connected and pressure coming out after you fill it up with water and pressure going out sideways, hey?

Natasha: You have to remember the pressure won't be there the same way. Nature is always seeking balance. Any other questions?

Shirley: I was going to address Bobby's question. Are you concerned about seepage, meaning when all those shaft ways going to be filled, somehow is the PKC going to seep? But it is so deep, I really don't think it will be an issue. Even if they do collapse, where would the water go? So, I quess it is a more seepage thing, not a pressure issue.

Myra: It is a similar thing. If you think of your bathtub analogy, so once water fills the pit, it won't move. It will actually be more stable. Right now, it is flowing because there is space.

Bobby: The way it is right now, I talked a little bit about seismic activity. We are always having activity in our area. I'm pretty sure it has occurred in this part of the world. I am concerned once it ever happens here, all this is going to be disrupted, seeping upwards and coming to my community. How stable is it going to be in the future? It is uncertain to me. I always felt those tremors, we felt those many times. That was one of my biggest concerns with all these mines putting stuff like this in the bottom of the mines. I have concerns about how toxic other mines are. Like gold mines they have more dangerous stuff there with the permafrost there. The way they want to leave stuff behind it is being unacceptable to me. They want to leave this stuff unmonitored after many years, it is really unacceptable they want to leave garbage behind, I don't matter what it is. All the landfills, I don't know what is going to go in the landfills. I would really like it to be part of our panel groups or whoever to monitor what is going into landfills. That is part of my biggest concern.

Louis: They are going to do filling of the pit and they want to fill up the open pit, it's only some other places like all the purple siding in the underground, and they are going to fill with water or something?

Myra: I have to check at what level the PKC is expected to be filled, because I believe all of this will be PKC – sorry not PKC, but PK, in that case it would flow into those areas and it would flow in this area. But I can see at what depth the tunnels start.

Louis: Are they going to have the PKC slime in there? I know there is a big long tunnel going down. Is there going to be water too, and think it's going to be a lot of waste and water, probably going to be warmer down there and harder for fish too?

Myra: I think like what Wayne was saying earlier, there will be a bulkhead that will separate the tunnel, but again I can confirm with Gord.

Jonas: You know this underground thing; we should get an underground engineer and tell us what is down there. It looks like they are following the diamond mine. So, I think they are trying to pick up all the diamonds in there.

Myra: So, the diamonds are just in in this kimberlite pipe.

Louis: They are going to have the water filled in there and the tunnel is big blast and they put water in there and once they take the water out, they put a water out, they put it in the plant, they are going to ship it back out? I wonder? Everything that will be taken apart will be shipped out?

Natasha: Are you thinking about camp waste? The powerplant, the water treatment plant?

Jonas: All the parts down there, they are going to stay down there?

Myra: Yes.

Natasha: I know you have asked for a session about waste – what is going to be sent out for recycling, what will stay behind, etc. and that is still on the lists for possible next sessions.

Joanne: Louis, the PK that they are going to put down in here, and the water that goes on top of it, most of it will never freeze, and it sounded like he was wondering about that. So, the ice that forms in the winter will just be on the surface sort of like a lake. After a certain number of feet of ice, you always find water under the ice. It will be the same in that pit.

Louis: We know for fact that on to the top it will be frozen, but this is barren lands so maybe 4 feet down and the bottom might never freeze, so maybe 4 feet deep the ice will probably freeze.

BREAK

Next Steps / Next Sessions

Natasha: We were sensing people needed a mental break, so we thought we'd bring up the next steps slide and talk about it today instead of tomorrow. [re-cap of previous TK Panels]. As I presented yesterday, each of these build on the other. We need to build on future sessions, 1 per year is probably realistic. We thought we would talk about the North Inlet next time, and these are some of the sessions you have suggested as well. Monitoring at Closure, Updates on PKC closure options, Closure Details: building demolition, metal disposal, waste disposal, contaminants, laydown areas, airports, roads, etc., and Closure Inspection Criteria. What you see up here, thinking about what we have already done, is there anything else that is missing from this list, other topics we should put forward?

Wayne: Are the sessions only once a year? Maybe we should make it twice, people are getting old you know.

Natasha: I know originally that was the agreement— when the TK panel goals and vision were first defined, that was the hope. So we can remind Diavik that that was the original hope. How would people feel about that? Would it be too much? Once a year is fine? Jonas says once a year.

August: Once a year is enough for me.

Jonas: Twice a year is got to be reasonable, because if there was a lot of concern we could do that. I know there is a lot of concern, but I think maybe twice a year.

Thomas: I think one a year is going great, but since there has been a change to approvals and permitting, I think one right after review board make their decision because it is a big change with what was originally happening.

Janelle: Twice a year is good because it makes people remember what is happening, and it is consistently in your thoughts. I want to meet twice a year.

Berna: Maybe twice a year, not for my benefit, but for the benefit of the panel here. Maybe once talk about wildlife, maybe about the closure and what is going to happen to other building materials. One time I went to the aquatic effects program, we never monitored the caribou, never went out to the barren lands and see the behaviors of the caribou. One time with Ekati we went out in a chopper and we sat out all day looking for the caribou. Maybe once a year for animals and another time for the closure. Thank you.

Jonas: Future topics and the North Inlet I think there should be because number one issue should be safety and talk about how you are going to do the safety – if you are taking everything apart, safety thing that goes along with it. Number 1 is safety first. The elders talk about it all the time. And maybe for Wayne's sake maybe do it twice a year.

Natasha: I hope we think about safety every time, related to each topic. It seems to come up every time at least. But especially about these closing details session, is that we should add that word specifically? In the Closure Details?

Joanne: If part of the problem for Diavik in having more than 1 session is having access to the rooms. We could think of having one session in Yellowknife and one out here and rotating the sessions. So we would really have to plan for the special ones here where we need to see things first hand to help with the process. And then those session we could have in Yellowknife where it doesn't really matter.

Jonas: It will be good to have a meeting in Yellowknife or Whati.

Bobby: Having it twice a year it would be good to have a refresher. Look at us, we forgot a few things in the session even how close it was. One year is a long time to keep it in my mind, and it is gone. 1 year is a long time for panel sessions like this. I think twice a year, that option of having one here and one in Yellowknife – I would be up for that.

Jonathan: Last time we did caribou monitoring at Diavik, we stayed at the campsite, the tent frame. That is where we did caribou monitoring and we stayed for 3 days. We took boats around the shore, so if we are having an issue and not finding rooms here, how about we stay at the campsites.

Natasha: That is a good suggestion.

August: I'm going to help Jonas. So, we will do it twice a year. Yellowknife is close to their house, hey? So, I agree with Jonas.

Natasha: What about future topics?

Joanne: I know in the past we have talked about having a big picture session, an overview. We look at these specific elements of closure, and sometimes it is hard to put it all together. So that we have a better sense of what to – and that visual that we are thinking of producing. So that we can look at what it would look like in the future. What do you think of that idea?

Wayne: Good.

Joanne: So, Closure Overview for a future topic?

Hands vote - yes

Natasha: Myra is there anything you can think of or is on the radar for a future session or timing?

Myra: I did ask Gord and he did respond, and particularly North Inlet does make sense to do it next time.

Natasha: Are panel members good at doing North Inlet next time?

Hands vote – yes

Natasha: We can throw this up again tomorrow and we can come back to it and add ideas. Just before we close for today, a couple things I wanted to share. We handed out notes from yesterday, if you can initial at the bottom then we know everybody has been able to look it over. [note discussion] Any more questions before we close? [discussion on seeing pit tomorrow]

END OF DAY 2 NOTES

Traditional Knowledge Panel Session #12: Pit Closure Options Day 3/4 Notes

Date Sunday, September 15th, 2019

Time 9:30am - 4:30pm Location Diavik Diamond Mine

Handouts 1. A154 and A418 Fish Habitat Design - maps (from TK Panel #6)

Participants Bobby Algona (Kitikmeot Inuit Association)

Regan Adjun (Kitikmeot Inuit Association)
Nancy Kadlun (Kitikmeot Inuit Association)
Roger Catholique (Łutsel K'e Dene First Nation)
August Enzoe (Łutsel K'e Dene First Nation)
Jimmy Fatt (Łutsel K'e Dene First Nation)
Shirley Coumont (North Slave Métis Alliance)
Wayne Langenhan (North Slave Métis Alliance)

Janelle Nitsiza (Tł_Icho Government) Louis Zoe (Tł_Icho Government) Therese Zoe (Tł_Icho Government)

Jonathan Mackenzie (Yellowknives Dene First Nation) Rose Mackenzie (Yellowknives Dene First Nation) Jonas Sangris (Yellowknives Dene First Nation)

Facilitators Joanne Barnaby (Thorpe Consulting Services

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Observers Mona Tiktalek (Kitikmeot Inuit Association - Interpreter)

Bernadette Martin (Yellowknives Dene First Nation - Interpreter)

Peter Huskey (Tłįchǫ Government - Interpreter)
Joline Huskey (Tłjchǫ Government - Staff)

Thomas Lafferty (Łutsel K'e Dene First Nation - Staff)

Janyne Matthiessen (EMAB (Environmental Monitoring Advisory Board)

Myra Berrub (DDMI - Principal Advisor, Communities and Social

Performance for Closure)

Gord Macdonald (DDMI - Principal Advisor, Sustainable Development)

Gord Cumming (DDMI - Environment Technician)
Sean Sinclair (DDMI - Superintendent, Environment)
Ryan Dempster (PIDO Productions - Sound Technician)
Emma Wilson (Thorpe Consulting Services - Transcriber)

Diavik Response to TK Panel #11 Recommendations

Gord M: [went over recommendations from last panel and Diavik's recommendations] We will be able to give you the items that are being removed from underground during the next panel.

Natasha: After Gord's presentation we are going to jump in to questions 4 and 5: If Diavik goes ahead with refilling the pit, what would you want to watch during closure to know that it is good? Regarding water? If Diavik goes ahead with refilling the pit, what would you want to watch in the filled pit lakes to advise if the pit lake should be connected with Lac de Gras? Think of those as your building blocks for the watching program that we are going to try and work through this morning.

Gord M: I think I commented on this one about the TK Panel recommends that we test slimes/PK in a fish tank to see if any water plants would grow on the PK. We didn't see a good reason to test it. We know plants grow in PK. [*Pending 1st slide*] We expect the approvals will be around November from Mackenzie Valley Environmental Impact Review Board. It then goes to the minister of the GNT that reaches out to all the Indigenous groups. I expect that will go until January. Hopefully by this time next year we well have more information for your next panel. Any questions? I have 3 specific questions here now to address -

Natasha: Joanne and I went and looked back at the previous reports and we were anticipating these questions are something you might want an answer to - how long would it take for the water be filled, where would the water comes from, and what would that look like?

Gord M: How would we fill this up? And lots of people think we are going to blow up the dike. That might be a fun thing to do, but it isn't what we are going to do.

Jonas: Can you go back to the first thing, the slide on your computer? The first one. When you say the words are from Diavik, is that you already making a decision and saying yes?

Gord M: Yes.

Jonas: We have only been here 3 days. We talked about it last night and this morning about the cone. Whose idea was it to put water in there?

Gord M: Diavik's back in 1998.

Jonas: If you put water in there it is going to create more problems. Earlier Bobby said if you start putting water in the cone the rocks are going to fall down, and it slide. So I am still thinking about that. And you are going to leave the materials in the underground. Where are all the veins, we just talk about it last night, you are going to leave all the pipes and wires whatever all down there. But still thinking that you should take it all out, don't leave anything in there, maybe flood the bottom, those underground veins, flood them all, and you put all that rock back, fill it right back to the top, and make it work, and make sure caribou will walk on it. If you put water in there, because of the heat from underground, it might not freeze too hard. Caribou go on it and fall through maybe. So, fill it right to the top and make

1 sort of a hill and put some stuff on it so it grows back to natural. That is what the elders and I were 2 talking about this morning. Looks like you want to do this in a fast hurry job. So it is still back of my mind, 3 thinking about how it is going to work. You use the scientists, use some traditional knowledge, and like 4 this morning you are talking about looks like done deal, done already. Consult other people - the 5 government, the government never owned the land up here. They think they do but they don't, the First 6 Nations do. You look over the last 100 years, our ancestors were up here. I don't know why the 7 government - if you leave it up to the government they are going to do it anyway. But the TK Panel, we 8 have been up here we know what is going on up here. Government looks at papers and say that is what 9 is happening. So, I'm still thinking about how - there needs to be more couple more rounds sitting 10 around talking about it. I hope tomorrow is not the last day and it is finalized. We never know what is 11 going to happen in the future. Maybe the young guys want to come back up here in the future, you 12 leave a big hill up, caribou can't climb on it. That is what we need to think about - not just the slime and 13 all that. It never happened before, so this is the first time. Those are things that are happening up here. 14 So still I'm not 100% sure based off the science. Looking at it, this is what scientists think, based on 15 science sounds like 'let's just go finish off'. But this is not going to be the last mine. That is what the 16 elders said. I said earlier the first day, I always remember when I met with my elders, and they said, 17 'Well Giant is closing, government is downsizing, what is going to happen next?' He said, 'Don't worry 18 about it, the creator will take care of it.' A couple years later they discovered diamonds. We have to set 19 up a good precedent that is going to last forever I guess, so we cannot rush into things. Maybe a better 20 method might come up, you never know. Mahsi.

Nancy: When you said to gush it in, I don't think we should just gush it in. If we approve the water to go in, I don't want the water to gush it in.

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Gord M: What we would do is put pipes, the big black pipes, in to the lake, and all the way into the pit, so we can start filling it like you fill up a sink, but not too fast, not too much energy so it doesn't stir up the sludge. We think it will take 6 months to 12 months to fill up the 154 and 418 pits. They would have to fill up together because they are connected. It would be a controlled filling and the water would come from Lac de Gras. So very little would come from precipitation. And we would fill it all the way up if you look at these pictures, all this dark area which is in between the edge of the pit and the inside toe of the dike, these would be areas where the fish would want to use the most. It will be shallow and most productive area for feeding. In real terms, probably end of 2026.

Bobby: When you are filling up with water, can you put a tube down to the bottom and filling up from the bottom instead of coming straight from Lac de Gras? I think if you did it from the bottom all that sediment will stay on top that we want to keep, but if you fill it up from the bottom to the top that would not cause any disruption that we want to keep as fish habitat on top. Like, could be all kinds of, bit of chemicals or anything that might be underground will stay down there if you filled from bottom up. I think it would be good to see in that way instead of having to fill it up.

Gord M: You are exactly right; we are on the same wavelength. Ok, so the next question is how long will it take for the lateral zone to support fish? If you put fish in there as soon as it is flooded, I think they would be fine, but there would only be food that would come in with the Lac de Gras water. It might take a year or 2 before the community in the sediment will start to develop. There is lots of vegetation

in there right now so I think it will grow quite quickly and be productive for fish quickly. Ok, what is behind the number of 5 of 32 tons of material from the PKC? Is that the estimate of the slimes in the PKC right now? Yes, 5 is our best estimate of how much slime is in there. We are trying to get a better estimate, and we should know by the end of the year whether it is 5 or smaller or larger for all of the slimes. And then everything else can have a rock cover on it if it needs.

Natasha: So 5 might change, but the idea is to move the slime and leave the coarse material.

Gord M: Yes.

Joanne: To help the panel decide how they feel about opening the dikes and encouraging fish habitat, is there any need to do habitat development work before the pits are completely full?

Gord M: All of the habitat construction work we are thinking of doing is up here. All this has to be done before the pits have to be filled with water. We need to start this next year. We need to decide by February of next year if we are going to build fish habitat here or somewhere else. DFO requires us to put the fish habitat here. I have heard concerns and they are open to alternatives. If the answer is we don't want to build fish habitat close to the mine area, or we want to do enhanced fish programs where it might be more used for communities, they are open to doing that. They are waiting for decisions from either us or the Mackenzie board with input from Indigenous groups. Back in 1998 there was only the one option of building fish habitat at the mine site. The scientists have said that the fish don't need this area.

Bobby: Can this be done to all the pits? If they didn't have something built like this right at the beginning, can this be done by the roads you have? Can fish habitat or material be put down in that spiral? The roads that you have, maybe I would like to see little bit of sediment near the top, near the top rail and roads before you start filling up each one of the pits and maybe they would start having fish habitat, if you turned the roads going down there in to fish habitat, putting in a little bit of material on the road. How deep would you want to go? You don't have to go down deep, maybe 150 feet or 200 feet, put a little bit of sediment, fish habitat material on the road on the top. Can that be done to all the pits?

Gord M: Absolutely we could. What the science has been saying, which TK might be different, only where its shallow, where it is 10-15 yards would the science people want to put fish habitat. But if advice from TK says we should put something on the ramps, that would be a good recommendation. And there is no reason it couldn't be in all 3 pits.

Wayne: I was just thinking about what Jonas said about putting rocks in down there, but then you got 5 units of slime that you wouldn't be talking out of the big PKC pit, and then you have another 5 in the other pit piled on there on top again. Is that correct?

Gord M: We are not talking about putting any of the rock in the pit. Would we have to put the rock on top of the pit?

 Wayne: No, Jonas was saying putting rock in there. But if we put rock in there, there are 10 units that would be left in that pit, in the PKC. So what we are doing if we fill it up with rock, we are causing a bigger problem on the surface because the PKC pile is going to get bigger.

Gord M: Yes, you are making it worse for the PKC, but you would be it better for the North Country Rock Pile. We have already gone through the discussions about why we aren't putting the rock in the pit. We have already made that decision and we are working on re-sloping that rock pile and putting a cover on.

Wayne: I brought this up so that Jonas would have more information on this because he hasn't been to the earlier meetings.

Jonas: I'm worried about the big pile here because it has to go somewhere. When it first started, they said they would move the big pile.

Gord M: We call it the North Country Rock Pile, so this is it right here. The pile will be a mountain that will be there forever. We are re-sloping the sides of it and putting a cover for the caribou to have it safe. It is not the plan to put it in any of the pits.

Jonas: I am concerned about the caribou. Where is he going to climb, where he is going to fall down? Every mine decision has been made already. At Giant Mine, decision was for mine to freeze that thing. We told them no, get it out of here. If it leaks out all lake is going to go down. Some of the elders say what is going to happen in the future? Earthquake, climate change. You are looking across the lake there, I don't think that is going to moving anywhere. See that is why the caribou is moving far away from us. You look at the territory around us, only BC you see big hill. It's flat here, good for caribou to wander. I remember when they first said, I will say it again, where are you going to put all the rock? Is it going to be the same thing as the other hill? They said yes. Now it is double. I don't know where you get your science stuff from, I just wanted to bring it up. I want to make sure caribou can wander everywhere all over the place.

Myra: Gord there was a question yesterday about where the tunnels are to access the pit and at what level in relation to where the PK would go up to.

Gord M: So these are the tunnels, the line would be in here. We would fill it up to here. Where it changes from being the top of the ice cream cone to the bottom. We can pump the water off.

Myra: And how are you going to close off the second pit from the first?

Gord M: We are putting big cement plugs that get built into the tunnels so nothing can flow out that way.

Shirley: I am just a bit confused because earlier I thought you said they would be filled at the same time because they are connected.

 Gotd M: If we put PK back in, we would put the PK in here while one is still being mined, but when we put the water in we will put putting it into both.

Mona: We keep going back to kimberlite. If you are going to fill up the bottom of the pit, are you putting waterproof, leakproof, in the bottom? It is all going to go spreading out? You said there is lots of water on the right side, because we seen even on the sand there is lots of water. When you open up, when you shovel up the sand, the water comes from all over. I don't know how long it is going to be filled. If you are going to fill it with water it is going to go all over the place, do you think?

Gord M: No, we aren't going to put any liner around it. It is going to be the earth, the rock there where it came from. I think we are going out to A21 this afternoon. We can see where the kimberlite is now, you can see the rock wall behind it. No it wouldn't go this way, anything the water is going to want to come in the hole, not out. This is where it came from, we think it is the safest place for it.

Nancy: I am letting Mona know that this is all solid rock.

Gord M: Ok thanks, I will leave you to your deliberations as they say.

Joanne: Last chance for questions for Gord.

Rose: Ok those two over there, the red and green, those are tunnels right? Ok so you said you are going to close it on both sides, but what about in between - are you going to fill all that?

Gord M: We will close those tunnels and it will stop anything from going over there. All of these tunnels on the left will get filled. All those tunnels will get filled, but there is way more space in the middle as the tunnels, but all that will get filled as PK.

Jonas: Will the caribou use the stairs [referring to the NCRP model], it is all I see.

Gord M: Jonas we need to take you for a walk to see the rock pile.

Jonas: How would the caribou going to use it, all I see are stairs, they aren't going to use it?

Janelle: The idea was that there would be a boulder for caribou to get a breeze, and there will be a natural sense of place, there would be boulders for them to hang out, we are hoping that natural vegetation will come back.

Jonas: Well caribou got different mind. They are not going to climb up there. Now the young generation they don't listen to the elders. Just scientific, think that is good enough. But you need to look at the traditional way too.

Joanne: The question of taking rock from North Country Rock pile to make it smaller, that decision has been made a long time ago. It isn't going to happen. What the panel is trying to work through is how do

we live with that rock pile? What is the best thing we can do with the rock pile to make it easy for caribou to go on their traditional migration routes and how to make the best of that situation?

Bobby: Coming back to Rose's question, you have plans to fill up straight water for both sides, as you are filling up one you are going to have it open to the other pit?

Gord M: Let's assume all the PK has gone back in, it is all done, we will probably bring it up together.

Bobby: So all that PK is capped before you do this?

Gord M: Exactly, it is all in there before then.

Joline: I just want to clarify some stuff here. No disrespect to the panel members. The reason Diavik has us here is to share knowledge with 3 different levels. The youth, the man, and the woman. You know, I find it kind of disrespectable when they say the youth don't always listen. I am not an elder or a youth. I am 45 years old, and I have worked with elders for 21 years with Tłıcho Government and with all other elders in our community and region. The reason they invited youth in this program is so they have their input as well. I don't find that hearing that kind of stuff from an older person that all youth don't listen or understand helpful. Janelle has been with this panel for a very long time and was raised by her grandparents, and now they are no longer with us, she is very knowledgeable in TK. I just wanted to say if youth have their own views, they might have both Traditional Knowledge and science. We live in a modern way, and we are learning both English and our culture, for us that is the Tłլcho. So I just wanted to clarify that because I don't want to feel disrespected. There is a reason why they are here because they are interested, and they have concerns. I just wanted to clarify that, I am not being disrespectful of anyone here.

Augustine: I am confused. The rock pile we did talk about it when we started way back years ago. Those elders aren't here anymore. It was them that told us what to do and how we should do it for caribou. That is how they did it now. It doesn't look good but it'll be nice and smooth all around it, so caribou can go on it. Just flattened around so caribou can go up for the breeze. So all from Rae, Yellowknives, they were said all these years ago. Because I am still sitting here I would like to mention that, thank you.

Jonas: This is not only for us, we want to protect the wildlife, we don't want the wildlife to get injured. The North Country Rock Pile, when the caribou climb the North Country Rock Pile, they probably wouldn't, but this kind of mine site if we continue in this manner we might come in to an argument but the wildlife and the fish in the mine, we are talking about these things, and often elders say that this is where our people use to travel to hunt and trap and today those things don't exist. And in the past, we used to go hunting near Tibbitt Lake, now we have to travel 7, 8 hours to see the caribou, the caribou would avoid noise and travel a long ways. This argument that exists, we can do without, thanks.

Joanne: So, I think we have all the information so what I would suggest is a 10-15 minute break and when we get together again it will be in 2 separate groups. The men's group will stay in here, so you'll have the use of the interpreting equipment, and then the women's group will be moving downstairs to

the Tundra room. Then we were thinking we would get started, and then we would have an early lunch break, go back into the small groups, and continue our work till 3 o'clock.

Augustine: Look around us, we are one bunch, we come here every year, and why do you want to separate us. We have a translator for us, everybody can say something.

Joanne: And August you are consistent; you have said that last time and the time before. We have found we have got more participation from everyone if we divide in to two groups. We want to hear from everyone as much as possible. When we break in to two groups, we present to each other at the end. So, we still do hear from each of the groups in that way and everybody's has the time to talk and you don't have 1 or 2 people dominating the conversation. It provides more opportunity for people to talk.

Augustine: Some that don't talk because they are just listening, and they are newcomers.

Natasha: Because there was a request to have a tour we are ending earlier today, really at the end of the session, we want to give as much as we can to Diavik, so we thought if we could break into 2 groups. It would give us more time to collect more information to make a stronger report. If we had another day, we would feel a little more relaxed, but this is our last day to give direction.

[further discussion of today and tomorrow logistics]

BREAK

23 Break Out Session: Women's Group

Joanne: We really need to try and focus on giving guidance to Diavik on a number of basic questions, one is how you feel about placing the PK at the bottom of the pits. Of course, the alternative is leave it where it is on the land and all of the problems we have identified with that that we have talked about fairly extensively. Based on previous discussions and previous panel recommendations, I think there is a consensus having the slimes at the bottom and covered with water. So everybody is ok with that?

Rose: I feel comfortable with it.

Janelle: Gord said we are putting it back where it came from.

Shirley: And lots of water opposed to that pond which isn't a ton of water.

Rose: Water on the bottom if they put it at the top, wouldn't it just settle in to how far it goes.

Janelle: I want to see if we can add plants in to generate oxygen. The amazon is burning, we need to create more resources of oxygen and the area on the side where the vegetation will be for the fish and for us as human beings.

Joanne: Do you want fish in the pits?

	Day 3/4 - Notes
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2	Janelle: Naturally if it goes.
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4	Shirley: If we breach.
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6	Joanne: I double checked with Gord if it is necessary to breach and his answer is no. So that is something
7	we can make a recommendation about.
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9	Janelle: I want to hear an option on of our elders from KIA because the water flows to you
10	Nancy. We need to make sure this is healthy to let the water come we are ok with it. If it is not healthy
11 12	then we are not ok with it. So make sure.
13	Joanne: So that is a big if. So, what do we do in terms of timing and how much monitoring time do we
14	want?
15	want:
16	Nancy: I'm not concerned about it not healthy because it has always been looked at.
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18	Joanne: Right, so how long do you want to watch it?
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20	Nancy: I don't really know. Scientists should know. They fill it, we monitor it, let them to check the
21	water. Just don't let it sit in there to not let it open because it is going to be stale and there will be no
22	oxygen in there. So as soon as it is ok for to open the dike, before it is stale in that water.
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24	Joanne: In terms of steps and the process, the first step would be to allow the water, or fill up the pits,
25	allow it to sit for a while to settle.
26	Napov Co to gottle eventhing and then they will eavit is good
27 28	Nancy: So to settle everything and then they will say it is good.
20 29	Joanne: Do you want to help decide to see when it is good?
30	Joanne. Do you want to help decide to see when it is good:
31	Nods in agreement
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33	Joanne: What would you be looking for?

Nancy: If it is murky.

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Shirley: Smell, if there is life in it.

Joline: I am confused, because that side I thought it would be that side where would be PK on because there is more vegetation on that side. I thought they would pour it in that because of the vegetation. But it is that side and they will block off that side. What I was hearing is they are going to fill it with PK in the bottom including the tunnels, fill it with water, and then monitor for 2 years to see how it goes. And then maybe look at the scientific results to see if those bugs are coming back and obviously it is going to

be closed in, and then once they feel it will be safe they are going to open the dikes, then we could see

and look at the results, and not leave it too long because of oxygen. Mona: If they fill it up right away? With fish? Joanne: That is a recommendation we need to address. Do we want them to put fish in there before it is breached? Mona: Ya Nancy: They will naturally go in if you open it up. Janelle: I don't know that is kind of a hard question. Rose: They need to put water in there before all this will clean out. Janelle: I think it will have to settle. Because after they settle and put fish in it. Joanne: They wouldn't do that before the 2 years. Janelle: Can they test the fish when they open the dike? Shirley: Ya because I'm thinking the fish need oxygen but when you do decide to breach, you are going to disturb them. So good to wait. Janelle: If they are closed in here, they should be willing to choose to go in there. Rose: Do animals go down there? Joline: Just the birds, nesting on the walls. Joanne: With all the activity other animals don't go there. Mona: There are birds in the open pit, open walls? Joline: Yes. Joanne: So, most of you have gone to the fish camp. Janelle: I haven't yet. Joanne: We do testing of water and testing of fish. We use both science and traditional knowledge. And we use TK by tasting. Tasting the water and the fish. And from different depths in different areas. So we

1 have caught fish from the mine site here. We have set nets near the mine site because we want to see if 2 there has been a difference. 3 4 Janelle: Any test on snow? There was a pink film on there. Has there been test for snow around the 5 mining areas? Sediment testing on the lake bed? Just to see from the blasting. 6 7 Joanne: I know they do tests of snow especially when there is yellow snow or grey from blasting. 8 9 Joline: So this would be amendment to their water license that would be approved by the end of the 10 year? 11 12 Joanne: Yes, by end of November. They would start planning the slime. Before they have final approval, 13 they can't do anything. 14 15 Joline: So maybe after June, July of next year. Can we make a recommendation before filling the pits, 16 bring the TK group to the fish plant so the group here can test the water and eat the fish and then after the dikes open and then do that after the dikes to see if there was a difference. 17 18 19 Nancy: The fish here is still healthy, from tasting sample. 3 years ago was my first time going there to the 20 fish monitoring. Last year we went have more parasites than 2 years ago. 21 22 Janelle: I think it is the happening everywhere from water warming. 23 24 Joline: That is what they see at Fletcher Lake this year too. It could also be because of climate change, 25 warmer water. 26 27 Joanne: The elders say it is from warmer water. 28 29 Janelle: They caught a big cyst, a big parasite on it. 30 31 Joanne: We haven't seen that here, just tiny little parasites when they cut it open. 32 33 Nancy: We saw how old the fish was. 34 35 Joanne: Colour of the gills, the elders use that as a strong indicator of the health of the fish. 36 37 Joline: We don't eat big fish because of the mercury. The elders know that and that is what I have 38 learned as well. So when I hear them talk about the bigger fish will swim deeper, but we don't 39 traditionally eat big fish. 40 41 Therese: We do if it is healthy. 42 43 Joline: That is what I noticed in the cultural gathering. They mostly cook the fish head and then really

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really dry it.

Janelle: If you eat the big fish you eat a really small piece or else you might get gassy or something. 1 2 3 Nancy: I am good with the slime in there because if they leave it up top they will sink. 4 5 Joline: Even if they put big rocks down there you will see a curious fox or something wanting to see the 6 water. The rocks won't stop them from going into it. 7 8 Nancy: It is a good thing they will put it in there. I have been under the pit when Mona said it might seep 9 out, these are big solid rock. 10 11 Joline: I heard at the hearing too because this company is owned by same company as Ekati, they are 12 wondering why they can't put it in their pits. 13 14 Joanne: They have a business arrangement. They aren't the same company, and you sure can tell 15 because they don't talk to each other. 16 17 Shirley: So are we all agreeing to put the PK in to the pit? 18 19 Nods in agreement 20 21 Nancy: What is in the PKC, let's make it nothing as possible. 22 23 Joline: I like how Gord explained the PKC is 30, and we are only taking 5, which is the slurry part in the 24 water. And so that way where you see the PKC on the edge it hardens, so eventually that would happen 25 and then they would cover it and then it will be safe for all animals to go over. And I think that was the 26 goal 2 sessions ago. 27 28 [writing on board] 29 30 Joanne: 1) Support putting slimes in the pit, so that is new slime that is produced plus moving slime from 31 the PKC. 2) putting water in and letting settle for at least 2 years before the dike is breached. 32 Shirley: Is that conditional though? Only breached only if the water is safe? 33 34 35 Joanne: Yes, make another point do not breach dikes until panel is satisfied that the water is safe. 36 37 Joline: And then you open the dikes. We said put the slimes in, let it settle, put the water in, and letting 38 it settle for a minimum of 2 years and then once it does that, we said we would open the dikes if it is 39 safe. 40 41 Shirley: Before all of that we have already set up the fish habitat before bringing water in I guess. So put 42 the fish habitat part before the water on the board. 43 44 Joanne: Yes, create fish habitat.

Joline: And then after opening the dikes, fish swim in naturally. Janelle: Let fish enter naturally. Don't force them in. Shirley: And then continue monitoring? Janelle: How long? Joline: This will still be in operation, this will still -Janelle: But after closure -Shirley: No, 2026 they will fill it. Rose: Still then, 20, 40 years Shirley: Gord said 20 years minimum. Janelle: If they go bankrupt, who will be responsible? Joanne: They have a deposit. Janelle: But what if that runs out? Joanne: Well, that is the risk. Joanne: It will depend on how good everything is working, how good the systems are they built for closure, we don't know that but we should give direction in that question. Shirley: So monitor until we are satisfied until fish are healthy in there. Janelle: So continuous monitoring? Shirley: Yes. Joanne: We talked about watching, the TK panel, to participate in the aquatic effects monitoring program. The fish camp. We can address that and say something about how often. Shirley: Shouldn't it be every year or twice a year? Joanne: Good question. Joline: Fish taste different in different seasons.

1 Janelle: They are kind of small when they are spawning, turn in to teenagers. The mercury could be 2 different every season. 3 4 Rose: Is this a manmade dike? 5 6 Joanne: Yes. 7 8 Joline: Do you know where the spawning area in Lac de Gras is? 9 10 Joanne: The narrows I would assume. 11 12 Joline: Just one area? It would be good to know. 13 14 Joanne: It would be more. 15 16 Janelle: So the question is how many spawning areas? 17 18 Joanne: Yes. When we come back, we will ask those harder questions in terms of what exactly we will be 19 looking for to make sure. 20 21 BREAK 22 23 Joanne: if you don't mind, I am going to take a minute to tell what the last panel session told us. So if we 24 can build on that rather than repeating it that would be helpful. [read out previous TK Panel 11 25 recommendations] With that in mind, do we have any further recommendations building on what we 26 said this morning? They might specifically be looking at water. 27 28 Joline: Maybe to see how long it takes to settle and to see how the vegetation is going I guess. 29 30 Bernadette: Water temperature. 31 32 Mona: See how the plants grow on the water. 33 34 Joline: Water quality and clarity. To see, when the dikes are still closed, to see the oxygen level of the pit 35 water, because the plants would also depend on that. Before and after dikes are breached. 36 37 Mona: We should try and get vegetation from Lac de Gras area and put it in the pit to see how it would 38 be. 39 40 Joanne: Transplant? 41 42 Mona: Yes, just the small pieces. 43 44 Joanne: I am assuming they would use seeds to plant when they build that revegetation area.

Joline: Putting those microorganisms where there are going to be plants because it does help cleaning up the water, with algae along the wall sides.

Joanne: So, in addition to taking the water from Lac de Gras -

Joline: Like during the 2 years of monitoring, put the microorganisms in there. Because they did say 2 different species would be ok - when they showed us the results, the toxicity results showed they would be ok.

Shirley: So with temperature are we looking at temperature as the same as Lac de Gras?

Joanne: We would want to know if there was a difference.

Joline: Lac de Gras is not that deep all the way around, only same areas, but not as deep as the open pit.

Shirley: So maybe it will be different after the breach too.

Joline: I remember too at the hearing they said when they open the dikes they open at the same time. If they flood, they want to flood at the same time, and if not it would become like a washing machine because you are creating current. So, they will be flooded at the same time.

Janelle: Where does this information go afterwards? Is it online? Who processes it? If the water isn't where we want it to be, what happens?

Joanne: My personal opinion is we continue to monitor ourselves, the panel, or its successor, whatever the communities decide. But it would be up to all of the governments to ensure that. And Diavik would have to demonstrate their closure objectives have been met until they are off the hook. We don't know how long that will be.

Shirley: So a separate category for fish under question 4.

Joanne: We talked about using the fish camp as a base to bring the panel out.

Janelle: Scoping areas. Adding the mine area.

Joanne: So expanding the use of the fish camp to the panel as a base, especially for fish monitoring. So we could recommend to the aquatics effects program they include in their fish testing setting a net near this area, the mine area, starting now.

41 Janelle: That would be baseline information.

Joanne: That is right. We have set nets in the past but only sporadically.

2 3 Joanne: What else do we want to say about fish? 4 5 Janelle: We want to see if they are coming in the area, see if they are living there, once the breach 6 happens. 7 8 Shirley: Once the breach, are the fish coming back in the pit? 9 10 Rose: They see how the other one works and then the second? 11 12 Janelle: At the same time because they are connected. 13 14 Joanne: They will block off the connections between them. 15 16 Mona: What happened if all the fish is still in there and then freeze up comes? 17 18 Nancy: There are going to be openings. 19 20 Joline: Gord also talked about pipes being left behind. I don't have a problem with that because they see 21 if they are safe or unsafe. Most of it is safe to stay below. The safest bit is to keep them down there. 22 They will be deeper underground then up here in the gravel pits. The sprinklers that will keep dust 23 down, I am ok with leaving down there and all the other stuff that they have down here. 24 25 Joanne: We will be getting that list of materials. 26 27 Janelle: How many openings for the dikes? 28 29 Joline: It tells you there are 3 openings. And the other one has several. 30 31 Mona: Do they have waterproof camera? To take pictures of fish. 32 33 Joanne: We want to talk about Bobby's idea about motion detector underwater cameras. I think he was 34 concerned how close the fish were getting to the PK. If it is activated by motion it would pick up the fish. 35 36 Shirley: We could add that as a recommendation under fish, before filling pits with water, install 37 underwater motion sensor cameras to monitor possible fish after breach at different depths. 38 39 Joanne: So that is actually related to question 5. So what else? 40 41 Janelle: I hope I am an elder in 50 years and I get to come here, and they are still monitoring this. Maybe 42 they should open this up as a resort. 43

1

Shirley: Start now to start testing fish near pits.

1 Joline: In BC they have this abandoned mine, they even take you underground, we wound up there to 2 take a look and how the process plant was. It is still there, they build a shack where they can serve food, 3 display type of materials and what can be made from the materials. How it drained into the ocean and it 4 killed many ocean species, and how they process in the plant. It is amazing how even though it is a steep 5 hill up, it's underground mining, and how it still can be done. I think I heard Gord mention that they 6 could take the top part and put it in the water treatment plant but then he could also talk about the 7 water treatment plant because there are maybe harmful substances like diesel underneath the plant. I 8 think for me I am ok with - I know Tłycho Government has a big concern about putting slimes 9 underground and then filling it with water because the middle part, 50% of it, the slurry part, the cloudy 10 area, that it does have some sort of chemical effect. I tried to find it in our report but I can't find it. 11 Anyhow I try to compare it to other mines and look at right out our back door and Giant can kill the 12 earth 8 times over and compared to that so. We have wildlife coming in to Yellowknife, we have bears, 13 wolves, and what draws them in to our communities is garbage and some people still puts their garbage 14 outside their door and I try to compare how our community is doing with our waste, and I try to 15 compare with industry, but when we see it, the diamonds mines are a lot cleaner than our own 16 community because they are sorting their garbage, there are incinerators, and things like that.

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Shirley: It's the regulator boards that make them do it.

18 19 20

Joline: You don't see in the community, here we are fighting to have it be pristine, but what about our own back yards?

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Janelle: We hold the mines to a higher priority than our own back yards.

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Joline: Sometimes too we look at people that sit up there and think they are high up there because they are leadership and we get trained so hard that we work for our own people and we get stuck with it because we don't say anything. Sometimes I have to get up and say something, even standing up to my own managers or directors as well, they have to realistic that we don't always live up to the past. Everything is changing. My parents were taken to residential schools, my parents saw the change, and my grandparents just kept the 2 oldest. You have to learn the white man way to survive. So they are all educated. The elders we have now too, some of them realize that, but some of them realize they are still stuck to their traditional ways. We need to adapt. It is difficult for someone like me who has been learned in English and then having to go back to the traditional way. Are they comfortable with me or not? Late Alexander Baker told me that.

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Mona: When they fill up the pit like this, will be they bringing a couple panels to watch?

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Joanne: Yes, that should be a clear recommendation.

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Mona: Because one time there was prospecting for the mines, the ______, they were kind of neighbours, but they kept everything there. There used to not be any panels long ago. Barrels over there, rubber tanks somewhere, air strips with lots of barrels, they cleaned it up 2 years ago.

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Nancy: They don't do it like that now because they have KIA.

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2	Mona: We have lands office now.
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4	Janelle: We were too welcoming and there was no awareness.
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6	Shirley: Before the regulatory -
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8	Joanne: So, maybe everybody can have a look at this map again. If you have feelings one way or
9	another, if you don't that's ok. About where you would specifically want to watch from. Is there
10	anything that makes sense to people or - What about things like testing water after it's breached? But in
11	terms of location. Is there any rational about one place or another?
12	
13	Shirley: I don't get this island thing. How do you put an island in a hole? They have an island shown in
14	the pit. That is confusing to me. Is this a before map?
15	
16	Rose: So you are thinking this big hole was an island?
17	
18	Joanne: It used to be all water.
19	
20	Janelle: you can see how they built the dike, and then they filled it in. [looking at picture on the wall] Are
21	we doing water testing at different depths?
22	
23	Shirley: So we want to test water for everything at different depths.
24	
25	Joline: Toxicity.
26	
27	Janelle: Different types of minerals.
28	
29	Joline: I could assume the darkness and depth would turn colder.
30	
31	Joanne: Well that is another thing, all 6 seasons. Early spring, late spring, early fall, late fall, summer and
32	winter. So are we missing anything?
33	
34	Nancy: Feel good with what we have.
35	
36	Janelle: I feel confident.
37	
38	BREAK
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1 Break Out Session: Men's Group

- 2 Natasha: We printed out a map of the pits that doesn't show it filled with water to give you something
- 3 to look at, same as what's on the wall there. And I've also got all of the previous TK reports in front of
- 4 me that we can draw from. In the past you've talked about if Diavik goes ahead and fills the pits, some
- 5 of the things you'd like to watch are: water fish, wildlife, wind, underwater sediments. We know the
- 6 scientists will have monitoring programs. But communities will want things that they want watched in
- 7 their monitoring programs.
- 8 Jonas: So here we are talk about the pits. We got no choice but we got to fill it with water.
- 9 Natasha: The original plan was to fill it with water. The revised proposal is to fill it with processed
- 10 kimberlite and then water. This is a chance to think about whether those original recommendations
- 11 change if it's PK plus water and not just water.
- Jonas: I wasn't here for those meetings. That [NCRP] country hill that decision has already been made.
- 13 Natasha: The north country rock pile and the south country rock pile, the TK panel made the
- 14 recommendations to monitor the seepage from those piles. Remember those testing forms that were
- at the traditional knowledge camp? Would it look the same as the TK camp where tea is used?
- 16 Jonas: Just found out the GNWT, the water board, the mine, they already made the decision to fill with
- water. The people that haven't been up in their life they made the decision before us. Before talking
- and hearing our concerns. It's hard to think overall how it's going to look like we're talking about water.
- 19 I'm lost.
- 20 Natasha: I know it's hard to parachute into this TK Panel but we have the chance to think about what it
- 21 would look like to watch the water to watch the fish through closure. The scientists have a plan for
- 22 watching water, fish, plants and this panel has come up with 150 plus recommendations. Some are
- 23 about plants and monitoring. But this session is set aside specifically to talk through monitoring before
- 24 decisions are made around filling the pit. So I encourage you to think about putting on your community
- 25 hats and, leading a community monitoring program based on traditional knowledge. We already know
- 26 they're measuring water and send it to the lab and test chemicals and monitor pH. That's why we have
- 27 a Traditional Knowledge camp. You have to look at the liver, heart, gills. Not sending it away. You have
- 28 to look at it with your eyes. So let's think about that. If they fill the pit what do you want to watch?
- 29 Bobby: After they put the PK in that pit there we can't really watch what the PK will be doing
- underground. After they cap everything and they're ready to put water in that's what I want to watch as
- they're filling the turbidity of the water as they're filling in.
- 32 Natasha: Turbidity. Does that mean you want to taste it?
- Bobby: The colour in the water and what might be seeping from the ground and after they have capped
- 34 the PKC or slimes I would like to watch the water coming up and how turbid it is starting from the
- bottom and also coming right up on top. And also plant life won't be instantaneous. It's going to be a
- long time for fish to be in there because of the turbidity of the water. I'd like them to put that fish in
- 37 and study that fish while that fish is in there and watch. That's what I want to watch.

- 1 Natasha: You kept saying I want to watch *them* monitor. I'm wondering what *you* would watch. What
- 2 are you going to watch and when and how and where?
- Bobby: It's going to take awhile after they put the fish in. It's going to take another while ... after the
- 4 turbidity is settled down. I'd like to watch that as well. How many years has it been sitting on the pile
- 5 for a few years already. Who knows that plant life or anything who knows, it's going to take awhile for
- 6 the fish to grow back in that habitat you're going to put in. Because it's been sitting out on the land
- 7 drying out on the land all the nutrients haven't been used with the water. You know because moisture
- 8 hasn't been there all the plant life hasn't dried up already. That's what I want to watch. See if all of that
- 9 habitat they're going to put in there see if that can make plant like in the bottom come back. And also
- 10 I'd like to have a study on all the bits of that sediment before they put it back in that pit. Without water
- in that habitat that they're going to put it it's going to be dried and dead already.
- 12 Myra: I just want to clarify there isn't a cap on the PK, it's just that heavier water, the *miromixis*, and
- then the lake water.
- Bobby: That cap I would like to watch that before they completely fill up that pit.
- Louis: They are probably going to put PKC slimes in pit and then all the phytoplankton and all the bugs
- 16 that would grow into the water, the sediment and the habitat of the fish. Fish would sometimes eat
- some of the sediments on the bottom of the lake. Once the fish and the water are put in the pit the
- 18 things I'm worried about, I'm worried about everything too, the slope of the north country rock, the
- sediment that they took out from the two pits is still at the north country rock pile, it would be good to
- 20 have all that sediment that was taken out, put on the North Country Rock Pile, so that it can revegetate
- 21 itself. I just want to share that with you.
- Natasha: To look at the bugs and the sediment to see what the fish are eating. Maybe look at the fish
- 23 stomach contents?
- 24 Louis: Once they put water back into the open pit they must be monitoring and watching the fish and if
- 25 they set nets and watch the fish and examine it would probably be a good idea. That's the only way. On
- 26 the main land there's another mine. Sometimes the water could seep into the receiving environment
- 27 there has to be a continued water monitoring around the mine site after the mine has closed so those
- are the things that I want to say.
- Natasha: So Bobby said once they put the processed kimberlite in the pit and they start to fill with water
- 30 you want to see with your own eyes how clear how dirty it is. So it starts with water after PK added
- 31 right. And then we heard yesterday, there was two suggestions for monitoring: 2 years and 6 years. We
- watch the water once the water is put in the pits over the PK. So Gord said it would take 6 12 months.
- 33 And then we'll have the pit filled with water. We'll be watching the water during that process and we'll
- wait a couple of years. And you want to put fish into the pit before they breach it. And what Louis said,
- catch fish see what they're eating look at the fish, I'm trying to come up with a plan.
- 36 Jimmy: I agree with this old man.
- Natasha: Which old man? There's two of them sitting beside you.

- 1 Roger: From what I've been hearing and visually seeing on the bus tour, I know they'll be filling the -
- 2 From what I hear from Gord, they'll also be putting the slimes inside the tunnels. I know it's straight
- 3 rock down to the bottom. But the tunnels are different because it's softer rock and sand. The concern
- from Bobby it might seep through. Is there a study about that? I didn't know that. That's what I caught
- from Gord. And they'll be blocking the two tunnels. Even if the water mixes with the water. That's just
- 6 my thought.
- Natasha: That's a question for Gord. If the PK behaves differently in the tunnels and in the pit. Is there
- 8 a way you would test to see or would you just let science answer that question?
- 9 Roger: Can't really say if it's been done in a different place. If there's a study about that. Just to
- 10 visualize about that. It just changes my views a little bit.
- Wayne: Someone mentioned putting the fish in. We have to determine what size of fish, what kind of
- fish and how long we use them before we test them. And the amount of fish to go in. In winter time
- you only have so much oxygen so there's got to be enough oxygen to sustain them through that period
- of time.
- Natasha: This didn't come from the TK panel it came from elsewhere, but one idea was to put a big cage
- 16 inside to keep them contained versus setting nets. The idea is to make it easier to catch them to test
- 17 them.
- Wayne: If they're in a cage how are they going to feed? How big a cage do you need? I don't see how a
- cage will help these fish at all. You'll still have to catch them out of that cage.
- 20 Thomas: I have kind of been listening to what everyone is saying. And what Gord said. And I have a
- 21 little bit of background in mining. Bobby has mentioned capping. On the first day I asked what is the
- 22 process slimes first and then PK.
- Natasha: You have to think of the slimes. You can't put a cap on it. If you put rocks on it, it will just flow
- 24 though to the bottom.
- 25 Thomas: Everything will be diverted through the mine workings. I don't know if there's any thought to
- using geotextiles. Sheeting to help maximize minimize the slumping to make it more a solid. Testing will
- it reduce the amount of slime and greywater.
- Natasha: From a traditional knowledge perspective, the concern I'm hearing is the turbidity in the water.
- 29 If you're going to collect water for drinking, you're out on the land. If you can only find turbid water, is
- 30 there something you would do to make it good drinking water?
- Wayne: If the water's a bit black you could put it though a nylon stocking or a diaper to trap some the
- 32 sediments.
- Natasha: You got that? Wayne wears nylons when he goes out on the land.
- Wayne: How do you know what I wear?

- 1 Louis: Once they put PK slimes in the underground we had the opportunity to go underground and
- 2 there's a big opening, are they going to put the slimes first. Are they going to cap it? How are they
- 3 going to do it? It would be good to get an explanation on that.
- 4 Natasha: If you go back to Gord's drawing, see right now this is all the PK. In the middle this is the
- 5 slimes. They're not going to take the coarse material, over in the jar by Myra. If I put some of these
- 6 rocks here and put it in it would flow to the bottom. So they're going to take these five tonnes of slimes
- 7 and put it in the pit. Then it would take 6-12 months of filling with water. What Joline explained
- 8 yesterday, if you have two buckets of drinking water all that heavy water is going to push down on this
- 9 processed kimberlite. Do you remember yesterday Gord drew this area as the area where fish live. That
- was based on the TK Panel recommendations last time and also what the fisheries biologists say. Does
- 11 that help clear things up, I hope.
- Louis: The dike, open pit, underground, I'm saying are they going to put water and the PK slimes into
- the openings in the underground and once they fill it with the PK slimes would they cap the opening in
- the underground.
- Natasha: Just PK. If I don't let these guys go there will be no soup. No soup for you. We'll meet back at
- 16 12:40 and I think we'll need more time so we'll stay as a small group.
- 17 BREAK
- 18 Natasha: Any reflections over lunch on building a plan? You know the women are going from A to B
- 19 really quick so we better catch up.
- Jonas: As long as it's thick enough. So no animals will fall through.
- 21 Natasha: Monitor the thickness?
- Jonas: At least you have 4-5 feet of ice all around. So no caribou, muskox, animal won't go through.
- Natasha: So far we have the recommendations to watch water for two years. Then put fish in the pit.
- We also want the ice watched or monitored. Before we get started I forgot to ask who would be the
- one to present. Maybe the youth.
- Louis: When the woman come back, nominate Jonas do the presentation.
- Natasha: If Diavik goes ahead with filling the pit what would you want to watch in the filled pit lake to
- 28 join it to Lac de Gras>? How are they going to make that decision? What information do they need?
- 29 Based on TK.
- 30 Bobby: I would like to watch the temperature. We all want to see the thickness of the ice. As it is being
- 31 filled, maybe start watching the temperature at that stage. And watch the temperature when it is full
- once it is filled up. I believe it will be some time for that temperature to be the same as Lac de Gras. I
- would like to watch the temperature before breaching.
- Natasha: What temp would it have to be before breaching?
- Bobby: I would like it to be stable like Lac de Gras. Maybe it will get as thick as Lac de Gras. Then maybe
- it will be breached.

- 1 Natasha: I wonder if temperatures in smaller lakes are different.
- 2 Bobby: Smaller lakes are held by permafrost. Under the lake. What I was seeing, the coldest pond you
- 3 could find are on top of the eskers. All those eskers they're all permafrost all the way across. The
- 4 temperatures are changing in all of those areas and we're seeing a lot of cave-ins. Eskers caving in.
- 5 Every sandy area that we have, they're all permafrost below and they're giving way because the
- 6 permafrost below them are giving way. They're drying up. Grass is growing on those beds where there
- 7 were lakes and ponds. These little ponds are held by permafrost.
- 8 Natasha: What do others think about this idea. Watching the temperature before breaching the dike?
- 9 Bobby: And also once that temperature is the same as Lac de Gras I'd like to put those fish in. Once the
- temperature's the same.
- 11 Wayne: When Gord was in here he drew a line where the permafrost was. And that's on the island.
- 12 There's permafrost on the left hand side and none on the right hand side. So maybe under Lac de Gras
- there is no permafrost. If there's no permafrost here and no permafrost there how would there be a
- 14 difference?
- Natasha: Bobby has come up with a good idea before breaching the dikes. One is temperature. One is it
- 16 tastes good.
- Louis: The dikes and open pits that exist, it's all been under water before so when we put water in and
- breach the dikes, the water will level off and enter the lake where I'm talking about where they were
- building the dikes it was all water, once they reach the dikes the water would probably level off with the
- 20 lake. So in that manner there was once water there and they took the water out and after that they
- started building the open pit. So once they built the dam and extracted the water that's when they took
- 22 out the ore. That was the process.
- Natasha: So what we've heard so far from testing the water is that you want to know the colour is not
- too turbid. You want to watch with your own eyes. You want to check the temp and check the ice
- thickness. Meanwhile wait to put the fish in and see how they cope. You want to test the fish and see
- 26 what they're eating. Check their stomachs for bugs and look at the health of the sediments. And how
- 27 do you decide once you look at the fish how to breach the dikes?
- Wayne: We have fish inside the hole and then you leave them there for awhile and go to test them.
- 29 Test the fish in the hole with the ones in the lake. See if they're the same. If they are, you can breach
- the dikes. Otherwise you will have to leave the dikes whole.
- 31 Natasha: So walk me through this. What are you going to be looking at to compare them? You will have
- to pull a few of them apart and check their livers, hearts, kidneys, bladders, just like at the AEMP.
- Wayne, what about the form that we use at the TK Aquatic Effects Monitoring program?
- Jonas: He doesn't eat fish or drink tea so how does he know? Sunday I pray for my friend. You want to
- know the difference between the lake. On the big lake it'll be different colours. When you fish on the
- 36 big lake and you fish on the inland lake they're different colours. Inland lakes they're warmer so they're
- different colours. In the big lake it's colder so it's more brighter.

- 1 Natasha: Would that apply to the pit lake or is it going to be different. You are nodding that it's going to
- 2 be different.
- 3 Jonas: It'll probably be warmer.
- 4 August: Jonas was talking about dark and light fish. When you see the light fish, they're taking their
- 5 jackets off.
- 6 Jonas: Just like when you take your clothes off at the beach and you get dark.
- Bobby: The reason for the temperature I'm worried about is that PK and slimes are I'm wondering if it's
- 8 going to affect the water on top. The slimes and PK have chemicals in them. Maybe they're going to
- 9 change the temperature on top where we're going to keep the fish. Filling it slowly and watching it from
- the bottom. What are those how are those going to affect the good water on top. Because we have
- 11 that PK and that slimes on the ground. How is it going to keep watch the temperature on top. If the
- slimes and PK are keeping the temperature warmer on top you're never going to get the same
- 13 temperature as the big lake.
- Natasha: What I'm hearing is you really want to know what the water looks like in the pit. When you're
- 15 testing the water, you want to take temperature from all different depths.
- 16 Bobby: Maybe 10, 20 feet or so see the temperature change. Including the PK and the slimes. What
- 17 temperature are they going to be in once you put them in. I'd like to see the temperature before we
- start to put the water in. I'm really curious what temperature they're going to have.
- 19 Natasha: You've also tested the colour. Someone mentioned the smells.
- 20 Bobby: The pit and the PK are going to have different smells. The ammonia. All this manmade stuff
- 21 that's already in the pit it's going to affect the smells of the clean water that we want on the top.
- Natasha: One thing I'm hearing about fish is them swimming and coming in contact with the PK. We're
- 23 told the weight of the water will keep the PK down, far away from the fish. Is there an interest in
- 24 watching where the fish go in the pits? Maybe tagging the fish. It's like collaring caribou. To see their
- 25 movements in the pit. To give you some confidence that they're not swimming down deep here?
- Roger: I just want to add if they don't put the fish in the pit to test it for two years, before if they breach
- 27 it by the map it says there will be five breaches. How wide will they be. What's the method of
- breaching? Before they breach it what will the water quality be? I want to see how the flow will be.
- 29 Like as before, how the water quality will be once it's breached, after it's breached. Will it affect Lac de
- 30 Gras. All of the water flows to the Arctic Ocean. My other thought is about the fish to monitor the fish
- 31 somehow if they do go inside the pit and if they use the food how if they'll get sick and reproduce. Just
- 32 like monitor and yeah.
- Natasha: Tell me what to write. Will water quality in pit lake affect water quality in Lac de Gras.
- Roger: Before and after. See how the water quality is, is it drinkable? And will it affect the water quality
- in Lac de Gras will it level out?

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- 1 Natasha: One thing I wanted to explain, on the papers you see the pit before the breach and after the
- 2 breach. So when they put the breach in they can do it so that fish do go back and forth freely or they
- 3 can breach it so fish can't go back and forth freely.
- 4 Louis: When you put water into the open pit they have to test the water before they breach the dike so
- once they take a sample and make sure it's safe that's the only way they can breach the dike. And if
- they test the water and they're not satisfied it should be mixed with Lac de Gras. If the water is not
- 7 good then we'll test the fish as well. That's the only thing I have to say.
- 8 Natasha: Are you saying that you don't think the dike should be breached?
- 9 Louis: Before they do that, they should test the water.
- Natasha: If you're the boss to test the water before they breach the dike and you take Jonathan, Roger
- and Regan to test the water, what are you going to look at?
- Louis: If the water's contaminated they'll identify it by testing the water. Once the water is clarified and
- once they breach the dike and the water would flow back and forth between Lac de Gras. That was
- mentioned in past meetings. So once they breach the dike it would probably come back to Lac de Gras
- 15 level.
- Wayne: I think that not only tasting the water but also testing it scientifically. Get it tested out.
- Natasha: For sure the scientists will have to test the water. All that's going to be happening. But this is a
- chance to say how would you test it. Would you just want the scientists to test it?
- 19 Wayne: If the scientists say it isn't good and then you drink it, it might do something to your system.
- 20 Natasha: Do you make tea with it or do you drink it?
- 21 Wayne: No tea.
- Natasha: I forgot you don't drink tea. Or coffee. Or both. We like that idea.
- 23 Louis: At Colomac I used to attend meetings there while reclamation takes place. There's a lake that's a
- fair size while they were cleaning up the mine site they open up the area where water would seep into
- one area and sometime during the winter also the scientist that was there tested the water with us the
- 26 water cleared up so he went ahead and drank the water. So those things are taking place and I just
- want to share that story with you.
- Natasha: I don't think Gord mentioned this. There's a few ways to breach the dike. There's one way, so
- 29 water and fish could go back and forth. Second way, only water will go back and forth. There's ways to
- 30 break down the dike so only water flows. So do you want fish and water to go back and forth or or just
- 31 water to flow?
- August: If you don't want fish to go back and forth, you got to block it.
- Natasha: You're right they would block it so fish could go back and forth. Gord could explain it. You're
- taking care of fish and water. You can decide. You can put forward a recommendation.

- 1 August: You mention blocking I got confused. Only scientists know. For me, they're living in different
- world under the water. We don't know what they eat under water. It's hard for me to know how the
- fish going to live. That's a problem I got in my head. Thank you.
- Wayne: I didn't know about this business blocking the fish going back and forth. According to Gord
- those pits all together don't even amount to 1%. So why don't we have the fish stay out in the open
- 6 where we know they're safe and just have the water go in and out.
- 7 Natasha: So Jonas said earlier today that the community members want to be involved early to guide a
- 8 process. So even though the plans are made there's shoals and reefs and habitat all around the pit -
- 9 you can still provide that recommendation that Wayne has given just to allow water to go back and
- 10 forth. Part two is that DFO requires that when you take away habitat in one area you have to replace it
- 11 somewhere else. If they take it away here maybe you want to make habitat in your community or
- maybe somewhere else in Lac de Gras. It's important that you know you have that chance to make that
- recommendation now whether water goes back and forth as well as fish or just water.
- 14 Wayne: You say that DFO, if you take away habitat somewhere else does it have to be on this same lake
- or somewhere else within the Northwest Territories?
- Natasha: You don't have to do it all in one area. You could do three small projects. How do people feel
- about that? Jimmy what do you think? I know you have a lot of fish experience.
- Jimmy: It's better off somewhere else instead of close to that. All I know when I catch it I know.
- 19 August: Nothing to say about fish.
- 20 Bobby: There's conflictions going on in my mind again. Every mine wants to put it back as clean as
- 21 possible. If they do take away this habitat. It's conflicting in my mid again. Every mine wants it as clean
- 22 and pristine as possible. It will never be pristine again. Because it's a pit and all those slimes. It's hard
- 23 to think that way because you already destroyed this part. It is already destroyed. Because you're
- 24 putting your slimes and PK. That's garbage. That's not pristine and close to the habitat that was there
- 25 before the mine was open. And I didn't really like what DFO said. If you take one away and create
- 26 another one that's destroyed already. You want to create something. No. They want it pristine. They
- want to open this mine. They want it as pristing as possible. That's not happening when you're putting
- slime and garbage in the bottom. That's not pristine. We've always thought that way in the beginning.
- We thought the mining company would put it back as clean as possible. Creating it somewhere else
- 30 that's not putting it back to what it was.
- 31 Natasha: It's a fisheries regulation. You don't want it destroyed in the first place but the fact is it's
- destroyed. This is a way DFO wants it. It is a better than nothing option.
- Thomas: Okay, so we're going on a lot about fish habitat. But it's not just fish. We got ducks and geese.
- They eat from the bottom. So whether they breach it or not we still have to have clean water.
- Natasha: Whether caribou are trying to drink the water. The panel advised that the animals are smart
- and they will smell the water. In a last panel we recommended already for watching behaviour. For
- that reason, we want to make it drinkable water quality.

- 1 Thomas: In terms of animals drinking water I've already seen at other sites. We got to think about all
- 2 the wildlife.
- Jonas: I like Bobby's idea. That pit is already destroyed. I don't think fish are going to survive in there.
- 4 Fish knows. Wildlife knows. It'll be tough to live in there. Maybe we shouldn't let fish in.
- 5 Natasha: Can I see a show of hands of how many don't want to let fish back in?
- 6 Unanimous show of hands
- Natasha: I see a recommendation coming my friends.
- 8 Louis: Breaching the dike, not putting the fish back. Once the dike is breached fish are going to want to
- 9 come back in the area. In the tundra the ice builds up very thick. Or if the ice freezes the ice is going to
- freeze to the bottom of the lake. If the dike is breached the water won't be allowed to flow back and
- 11 forth in the winter time.
- Natasha: Just to wrap things up we have a bit of a plan. Watch water after PK added for two years.
- Watch fish this is if fish are allowed to go back and forth but what I'm hearing is we don't want fish
- 14 going into the pit lakes. So this will be the recommendations, build the dike so the fish can't pass.
- 15 If...watch temp, test fish, only then when they're okay would you breach. With water is you would want
- to test turbidity, colour, watch with your own eyes from the bottom as it fills which means collect
- samples all the way up through the water column, monitor the ice thickness, water won't flow between
- 18 the two, learn from scientists that the water is drinkable, then once drinkable, do a taste test to test if
- it's good. If good, then you'd breach the dike to let water back and forth. Did I miss anything?
- 20 Louis: We say that we won't allow fish to move back and forth but the fish would go as they please. For
- 21 example it was tried with the caribou to deter them from going on place that are on contaminated. If
- we do that with the fish then the fish won't go back and forth. I just want to mention that.
- Natasha: Louis I'll add that we can't deter where fish go unless you have a physical barrier. Any last
- 24 thoughts.
- 25 Roger: We're talking a lot about fish but wildlife, we can't tell 100% monitor every animal, there's siksik
- 26 (groundsquirrel), foxes, birds, if they're siksik, and he drinks the water, he's prey, the fox will eat it. Will
- 27 they be monitored? If they get sick, what action will take place? Because of the food chain, the prey will
- be eaten than passed on to the bigger animals like the bears, wolverines, foxes, falcons. And they start
- to get sick because of the chain reaction. What action or what will happen if they do, what's the steps
- afterwards when that happens? It's just a thought.
- 31 Natasha: Thanks for bringing that up. That's a challenge for sure.
- 32 BREAK
- 33 Group Discussion: Women's Presentation
- Joanne: Janelle and Shirley have offered to present the results of our work.

- Janelle: So our focus was not on the PKC itself it was the water that would potentially go in to it. Some of 1 2 things we discussed we all agreed to put the slime in the pit. We aren't giving our garbage to someone 3 else, not building larger boulders. We want to bring water in and let it settle for a minimum of 2 years. 4 Before we bring water in, we want to create fish habitats for the potential use of fish. We aren't saying 5 they are coming in, but they have the potential to come in. And then we don't want the dike open until 6 the panel is satisfied and we know the water is safe for habitats and animals. Then we would let the fish 7 enter naturally, and not forcing them. Option for flowing in through the dikes. And continuous 8 monitoring, including the TK panel into the aquatics monitoring program. We had questions on how 9 often should we monitor the water, the fish, the spawning areas. Our guestion for Gord is where are the 10 current spawning areas on Lac de Gras? We want that baseline information before decision making. So 11 we went back to guestion 4, If Diavik goes ahead with refilling the pit, what would you want to watch 12 during closure to know that it is good? Regarding water? We broke it up in to two parts. Water and fish. 13 We would want to monitor water temperature, the possibility of transplanting vegetation from the lake 14 and to make it look consistent, a little bit of that prior information, I don't know if the new panel 15 members know, but both pits were under water, that was not land, so the goal is to bring it back as 16 natural as you can. Monitoring water temperature, clarity, oxygen level before and after the dike is 17 breached and we need to see how the water looks and tastes like before and after. Joline had added 18 microorganisms, algae and to monitor the water at different depths, because that is 150 meters of 19 water to be tested. We really liked Bobby's idea of cameras to monitor the fish in the water to see if 20 they are flowing into the area. We aren't forcing them, the cameras can show if they are all actually in 21 the area. I learned about all different seasons, it was a great focus group. We moved on to fish. We 22 utilize fish camp here and we will expand it so we can test these areas as well. We wanted to do a 23 baseline study to monitor near the mine before we open the dikes to say what does the fish look like, 24 baseline stuff so we have something to compare it to. After the breach we want to see if the fish are 25 moving on to the pit. And then question again was the motion sensor and checking the fish at the lower 26 level. So we didn't focus too much on the PKC because that is already finalized and that was a plan in 27 1998 I believe so we really did focus the question at hand and what we wanted it to look like. We would 28 make it natural as possible and bring it back to the way it was so that animals can use the area.
- 29 Applause
- 30 Joanne: Any questions?
- Joline: I wanted to correct you, in 1998 they didn't approve the PK back in the pit, but then our group
- decided it would be ok for it to be in the pit.
- 33 Joanne: Which we discussed for the first-time last year. Any other questions or comments? That note
- 34 about spawning areas, we wanted to know where Diavik has mapped that out from the past and we
- want to know that to be aware of where those areas are will help us understand what to do with
- 36 habitat. Men's turn.

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Group Discussion: Men's Presentation

- 38 Jonas: We also talked about the fish and here in the barren lands the land belongs to the wildlife and the
- 39 aquatic life, so doing samples of water and doing the study of the fish and the fish habitat, because it is

1 open pit area and we like to see the temperature of the PK being put under and also just think the water 2 for its temperature, turbidity, and keeping an eye on - sometimes different wildlife want to go in the 3 water so we have talked about these issues and when will we put water in the open pit? The water -4 once we put water in the open pit because the open pit was blasted out so the water turbidity may 5 change, and how can we test the water by drinking it or - we talked about these issues. We would like 6 the water to settle for 2 years and then test it, and then if it is good we will put the monitoring station in 7 for 2 years and when we do the study of fish then we know the health of the fish and then we can 8 continue to do that, but that times because of the open pit that exist today the fish might not come back 9 into the area because of the extraction of the rocks and it has been disturbed so some of us put fish -10 may put screens on any open spots we have on the dike just let the water flow back and forth and monitor that for 2 years and then after we do monitoring for 2 years then we would like to do study of 11 12 fish before we put water in the open dike. There is other species of wildlife that roam on the barren land 13 and we don't want the wildlife to get injured when it is crossing over the pit during freeze time. And we 14 are still thinking of these things. And there is another discussion about not putting fish in the open pit 15 and have a minimum of 2 years, monitor the water if we add fish in initial fish it might not be good for 16 the health of the fish. If I forgot about stuff certain things than you can add to it.

Bobby: The reason we want to do all this is because the PK on the bottom might have an effect on the temperature of the clean water on top. We want to monitor that PK or that slimes, how stable is it going to be after we put it in there? And then watch in stages up to the breaching levels and see what the temperatures is going to be for the whole pit because the open pit is manmade, and it isn't natural anymore. We want to have the same temperature as Lac de Gras before we can put the fish in there and because - and also the turbidity of the water is going to be really hard to tell if the temperature or sediments are coming in from the PK and slimes that are down under there have an effect on the temperature. We want to watch that very closely. And How turbid it is going to be after filling it with water, the good water that we want to have fish habitat, where we want to create fish habitat. We want that temperature to be the same as Lac de Gras which gives us a clue as to how the fish are going to react to the pit compared to Lac de Gras. We don't want to put any fish in there right away, we want to watch it. Maybe breach, and the reason for breaching the sides, and letting it freeze: we want that oxygen to circulate in the pit, before you take the screens off. Just watch how the fish are going to react. How the temperature and turbidity is going to react after filling it up. That is the reason for watching it for at least 2 years. That was what we wanted to see. Maybe that way we can see how the water is going to be after taking the screens off or before taking the screens off, how the ice temperature, how the ice is going to be after it freezes and maybe when you breach that to a certain distance, how thick is the ice going to be? We know how thick it gets, 8 feet or 10 feet, in Lac de Gras, so we want to watch the temperature in the pit as well. Thank you.

Natasha: Any others want to comment on what we just heard? Anything missed?

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- 37 Joanne: You had one idea we didn't consider and to put a screen in there for I don't know how long.
- Natasha: Gord and I had a discussion because I wasn't fully understanding the idea of breaching a dike.
- 39 So there are 2 ideas. 1 is to prepare the dike so that only water can go back and forth. So it is physically
- impossible for fish to go back and forth. Option 2 is to allow both water and fish to pass back and forth.
- 41 So in the men's group, we actually took a vote and they unanimously agreed if they had the choice, they

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- 1 you would say, we won't let fish go back in, we would put effort in fish habitat better somewhere else.
- 2 So as we prepare our recommendations this evening, it sounds like we have sort of 2 different ideas.
- 3 Maybe we can spend a few moments talking about this.
- 4 Wayne: When we first started discussing this, we split the group up here. We had no idea about how
- 5 these dikes could be built to breach the pits. So, we just learned it from Natasha here only ½ hour ago. I
- 6 don't know if the women's group knew this or not. Maybe it would have made a difference on how they
- 7 would answer.
- 8 Natasha: My understanding is it is still under consideration. So we can make other recommendations
- 9 but we don't know what decision Diavik is going to make.
- Myra: So it was the original plan which was approved where the pits would be filled with water and it
- would be connected back to Lac de Gras, which was a DFO requirement because we took out 1% of the
- 12 fish habitat in the lake. But we have heard through these discussions including the input from the EA
- process, people are feeling uncomfortable breaching and letting fish can go back and forth. DFO has said
- if that is what the communities want, the dikes don't need to be breached. The plans are still very
- 15 flexible, someone asked about the amount of breaches, how wide are those, how those get decided.
- 16 The width was decided by Transport Canada to allow boats to go back and forth and has nothing to do
- 17 with fish access. Because it is navigable water we need to allow boat access to have. But stepping back,
- we can spend that money elsewhere.
- 19 Natasha: So I am just wondering if the women had that detailed information whether you feel like
- 20 option 1 would be not to encourage fish or not breach it such that they could not go back.
- 21 Roger: I want to touch up a few things. In our discussion one of them was about the wildlife, and the
- birds, geese ducks, falcons and all, if 2 years of the water being in the pit, cause we cant 100% monitor
- 23 the wildlife and there is animals foxes, wolverine, bears, and with the food chain and rabbits if they
- 24 drink the water during those 2 years, if they get sick, you know if the food chain, if they do get sick, what
- 25 will happen after that and what action will happen if it is possible for that to happen? That is what I
- wanted to touch upon.
- 27 Thomas: Natasha I think I had a bit of understanding. We had a vote on do not allow fish through dikes
- 28 which was unanimous. You mentioned after that the DFO gave another option of creating another fish
- 29 habitat somewhere. I am not sure if we voted on that. I thought Wayne thought it was a good idea but
- we didn't talk about it during the group.
- 31 Natasha: No we didn't talk extensively about that because this is a moving process, my thinking was to
- take the temperature to get a feel on how people were feeling about the idea of rather than as Myra
- 33 says, focusing time, energy, money on making these areas key for fish habitat like the proposed fish
- habitat in these handouts. That instead, DFO may agreeable to communities creating alternate fish
- habitat elsewhere. My sense, Myra, is that they may be open to that especially if it comes from
- 36 communities, but I didn't want to over promise or over deliver, etc. I also talked a little about that idea
- 37 about respecting animals and trying to get a feel from people if letting fish back in to the pit felt like the
- 38 most respectful thing for fish.

- 1 Nancy: Thinking of fish, putting them back in, well the fish get hungry there and they would know where
- 2 to go eat, we don't need to create food if that isn't going to happen. They will just go anywhere where
- 3 they feed, because any animal do their own little work. We don't have to worry about them, only if the
- 4 water we know they will be clean. We don't need to worry about the fish.
- 5 Joanne: I would like to hear more from elders about the idea that the men provided about fish not
- 6 entering the pit.
- 7 Shirley: Well the dikes would not get breached unless it would be safe to do so, if the water was
- 8 drinkable. That would be the only time the dike would be breached. If it is safe enough to open up, why
- 9 wouldn't you allow the fish to come and go? And maybe we don't need the fish habitat here if it would
- 10 serve the communities better. Maybe if they aren't edible or don't taste as good as a deeper lake near
- 11 their community would, I don't see a reason why we would put those gates from stopping fish for
- 12 coming back in. It doesn't make sense for them to block them from it if it wasn't safe in the first place.
- 13 Jonas: Reason why we don't want fish in there is someone might go to, example, if there was a
- 14 graveyard, would you want your body in there? It's already damaged - cracks and if there is rain putting
- 15 water, it is going to seep all over, so you know that smell of blasts and all that sediment stuff. You put PK
- 16 in the bottom it might come up, I don't think fish will come up and eat the food. Like Louis said, fish is
- 17 always looking for food. They eat bugs, they eat everything, are we going to have that down there? I
- 18 don't know. So those are some of things we are wondering about. The damage is done there, the water
- 19 is dirty they might not want to go there. So there are a lot of reasons.
- 20 Joanne: Part of the thinking during the women's group is that fish will go there if they know there is food
- 21 there. They won't go there is there is no food there, no bugs for them, so the thinking was that the fish
- 22 will know and they will make the choice themselves. Once we are satisfied the water is clean, so that
- 23 was the rational there.
- 24 Janelle: if it is good enough for the water to flow through why isn't it good enough for the fish to flow
- 25 through? It was their natural playing grounds one time, we took it away, but now we are giving it back to
- 26 them. The water is already flowing back now, so if it is good enough for the water, it should be good
- 27 enough for the fish.
- 28 Mona: The fish could smell if they don't like the water. I don't think they will go in there. If there is no
- 29 food, even young people now a days know there are lots of fish, they can smell the fish, when there are
- 30 lots because they spawn together, but if it is clean water, if they like the water they will go in and out. I
- 31 don't think they will go in if there are no food, no spawning place, no plants. That is my thought.
- 32 Louis: We've been talking about the dike. I have mentioned this before, once we fill the dike with water,
- 33 probably we would have to fill the dike with fish habitat and when we put the PKC underground and put
- 34 the water into the open pit, and fill it to the same level as Lac de Gras and monitor it for 2 years and test
- 35 the water if it is good enough, and breach the dikes. In the tundra the thickness of the ice is very deep
- 36 and that area once was open water, and now it is a dike, and if we put water back into the open pit and
- 37 breach the dike you know the fish will swim back and forth and the current will move back and forth and
- 38 this is what I mentioned before. It would be good for the fish because they used to swim in that area. It
- 39 is in their environment. So once the water is clear enough and safe and they can breach the dike, and I
- 40 just wanted to share that with you.

Diavik Diamond Mines Inc. Traditional Knowledge Panel Session #12: Pit Closure Options Day 3/4 - Notes

- 1 Joanne: Ok so we are running out of time to get ready for the bus. How do you want to deal with this?
- 2 Do you maybe what we could do is ask Gord to provide us with further information if we think that
- 3 could be helpful. I'm not sure what you have in mind.
- 4 Natasha: I am just thinking we have some really great recommendations here and I think we there was a
- lot of similarity between the two groups in terms of what needs to be watched. Test the water, the
- 6 plants, the animals. So I think we have enough to work with for sure to come up with some
- 7 recommendations, and if the dike is going to be breached to allow fish to be able to go through we have
- 8 recommendations, and if the dike is not going to be breached we have recommendations.
- 9 Joanne: I am wondering if we can keep that open for another point? We don't have to make that
- decision now. We can ask Diavik to have that option open so that you are comfortable making the
- decision one way or another. There is time, they don't have to make the decision about breaching and
- 12 how they are going to breach now, so maybe we can keep that open?
- 13 Myra: I am really not trying to push this, but there was the timing in terms of trying: we would start
- putting boulders in the anticipated fish habitat area starting in the spring. If we know for sure if there
- was no breaching and having fish going back and forth, that could change things.
- 16 Natasha: Maybe Gord can come clarify, but the other thing to think about you are talking about the
- money and the effort, if there is one pail of money, that pail money either creates this fish habitat, or if
- the decision is, 'No we don't want to encourage fish to come through here, we will take that pot of
- money and decide to enhance fish habitat closer to our communities or another place in Lac de Gras.' So
- if we don't know if it's a tough one, but that is where we may need Gord to make that decision.
- 21 BREAK. END OF DAY 3 NOTES.

Traditional Knowledge Panel Session #12: Pit Closure Options Day 4/4 Notes

Date Monday, September 16th, 2019

Time 8:30am – 1:00pm Location Diavik Diamond Mine

Handouts 1. Traditional Knowledge Panel Session #12: Recommendations

Participants Bobby Algona (Kitikmeot Inuit Association)

Regan Adjun (Kitikmeot Inuit Association)
Nancy Kadlun (Kitikmeot Inuit Association)
Roger Catholique (Łutsel K'e Dene First Nation)
August Enzoe (Łutsel K'e Dene First Nation)
Jimmy Fatt (Łutsel K'e Dene First Nation)
Shirley Coumont (North Slave Métis Alliance)
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Janelle Nitsiza (Tłįchǫ Government) Louis Zoe (Tłįchǫ Government) Therese Zoe (Tłįchǫ Government)

Jonathan Mackenzie (Yellowknives Dene First Nation) Rose Mackenzie (Yellowknives Dene First Nation) Jonas Sangris (Yellowknives Dene First Nation)

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Gord Cumming (DDMI - Environment Technician)

Grant Stewart (DDMI – Acting COO)

Ryan Dempster (PIDO Productions - Sound Technician) Emma Wilson (Thorpe Consulting Services - Transcriber)

Presentation: Draft of TK Panel Recommendations for Discussion

Gord M: Grant has the responsibility for doing the work. All the great ideas you come up with ends up being his job.

Grant: Good morning everyone. Thanks for coming here for the weekend. Hopefully the weather wasn't bad. Thank you for your input and ideas, like Gord said, we really need advice and we welcome the input on how we should close, how we should do our remediation. The vision of my team is do as much closure now as we can, and when the mine ends in 6-7 years, it is a nonevent because all the hard work is already done. It would be nice to understand how you feel about how we close the dikes, is there fish habitat - we are open to all those ideas. So the more you can help steer us in the direction you'd like, the better. We know what to do. We have a team of people, we have equipment, we just need to go in the preferred direction. A lot of people have opinions but I think your voice and opinion has a lot of weight, and people listen. So the more clear and forceful you can be with your ideas to us the better. We really appreciate the guidance, and we want the guidance. Any questions on what you've seen or future?

Joanne: We are just gearing up to get down to our recommendations for this session, so people are a bit preoccupied. Any questions, and comments?

Bobby: Thinking about that PK under the ground again. Can that be monitored for temperature at all times after it has been put down in that pit, after it has been settled down? Maybe put some monitors down there if you can to monitor the temperature and what the slimes are maybe doing down there, maybe they will change the temperature down there. I would like it monitored. And talking about the temperature in that pit yesterday it got us to thinking about the monitoring and the slimes and the PK under there.

Grant: I think we can because we do have temperature sensors in the earth in different places around the pits, and so it is not out of the possibility that somehow we get them down into where the fine kimberlite, where the fine crushed rock is stored. The water will decant off and will be pumped out. It will be like a huge beach but it'll be like sand filling in the voids. We think it will just be packed in and settled in the very bottom of the underground. It should make its way down to the deepest areas of the mine. And that is where it came from and it would be nice to have It back in there and yes we could find out what its temperature would do. I would imagine – who knows – we don't know what the whole reclamation is, do the tunnels somehow get filled, what happens to them? I'm not sure, I know all the infrastructure will be removed, all the pumping will be removed. So it will have to be a separate instrument to get the temperature. We have done it before so I don't see why we couldn't do it again

Bobby: The two pits are going to be watered at the same time, and the water is going to fill both pits together there. I would really like to have monitors somehow down there to have the temperature - what it will look like after the PK and the water has been put in there. The reason, there is the ice in the wintertime, fall time, how thick it is going to be after the temperature might have changed. Maybe the temperature is going to be changing and the ice in that pit might somewhere be a little thinner than the main Lac de Gras area. That is what I would like to keep an eye on for filling up and for the duration of the time you are going to be here.

Grant: That would be interesting to see what would happen to ice. We usually get 6 feet, 7 feet up here, so that is very thick. Yes, will it be thinner if it is confined versus less confined. We can certainly do samples every winter, do many core hole samples in the ice, see what the depth of it is in different areas of each pit and try and map it out, maybe get someone out on the lake itself within some area, try and make a conclusion. It comes to be a bit like statistics – the more data points you have the more you can believe what you are seeing. We would need to get quite a few samples to make a conclusion. We could do a few years in a row and see, does it change year by year, or what does it do. That is the only thing we can do, get enough data.

Joanne: Any other questions or comments? Well thank you very much coming in.

Grant: It is good to get the same people back year after year.

Joanne: We have been fairly consistent and there is a desire of that from the group and the communities.

Grant: Ok thank you.

Myra: He is the acting CEO.

Natasha: Just before we get started, are there any questions on what this morning will look like? For the folks that are here for the first time, what we do is we pull together both guiding principles and strong recommendations that come from the TK panel and are then presented to Diavik. We go through each one word by word to make sure everyone is comfortable with it. Once you give the thumbs up, Gord comes in and we present it. [1st slide on Guidance – Monitoring].

Joanne: So remember it is a statement that is coming from you, so you need to feel comfortable with the wording of it.

Shirley: Reading that second sentence, it sounds like we are carrying the monitoring out? The native organizations, not Diavik?

Natasha: The thinking behind the second sentence is that 1) Diavik has to do their own monitoring, their own watching, in accordance with the regulations of running and closing a mine, but on top of that, there are watching programs, monitoring programs, that bring

community members, TK panel members and others on the land, in the boat, seeing with you own eyes. This watching helps you feel more comfortable and understand what is really happening out here rather than just reading report results.

Shirley: But if they are scientific, we will probably need someone else to carry them out?

Joanne: In the women's group we talked about expanding the fish camp, that includes both science and traditional knowledge, and a lot of communities, as they are evolving their guardianship programs. They are looking at bringing in both knowledge systems as well, so that idea is evolving. It is not clearly defined yet. So you will find as we get in to the recommendations sections we speak specifically about expanding the aquatic effects monitoring program to include the panel, so that'll incorporate both.

Shirley: Thank you.

Natasha: We put the word "monitoring" programs here, I know people use watching sometimes. Would you feel more comfortable with the word "watching"?

Janelle: I feel if you use the word watching, that we are just watching with our eyes - we are using more than just our eyes. We use all our other senses, touch, feel, so I like the word monitoring.

Natasha: Ok I see nods around the room, are we ok with this?

Yes

Natasha: [2nd slide guidance – monitoring] Of course you have been watching and monitoring your lands and water since the beginning of time, but now with the mine here you are making formal monitoring programs part of your life. Are we ok with this one?

Nods

Natasha: [3rd slide Guidance – Monitoring] So Roger, this was your idea specifically. It is one thing having monitoring programs, but what happens if you find something you are not comfortable with? A sick fish or sick fox, you need a plan in place to test that fox or test that fish to find out what happened. That is the idea here we are trying to convey. Does that make sense?

Nods and hands up

Natasha: [4th slide Guidance – Monitoring] Seeing nods around here. Ok. Should I add non-evasive and respectful or leave as is?

Janelle: Yes, add respectful.

Natasha: August used the word 'forever' for monitoring, whether it be Diavik, you, government or somebody else. What we heard is that you always want the pit lakes to be watched. Did we get that one right? This is a difficult one because Diavik at some point has to walk away and not have that responsibility, but this is a guiding principle, this is still something we heard, so we are including it here. [1st slide Guidance – Ways of Knowing] We are trying to show that animals are clever, but sometimes you still find a sick animal. Are we ok with that one?

Nods

Natasha: [2nd slide Guidance – Ways of Knowing] Are we ok with these 3?

Janelle: What do you mean by productive? I thought production was happening, as in mining?

Natasha: Good point. We need to re-write this. So in this language, this was coming from Wayne and some of the elders around re-vegetation – we can't just throw the fish back in the pits, it's going to take time to make it a hospitable environment.

Janelle: I see productive as mining, not for the animals, but 'productive' in a mining sense.

Joanne: We can use language like 'returning to the natural state'. Might be better.

Nods

Janelle: Maybe we can say 'return to a natural state' because it isn't going to return back to the natural state.

Natasha: [slide 8] Nods around the room?

Nods

Bobby: Sometimes we are not always getting the tools we need to think about before we come up to these camps. If Diavik could give us what we are going to be working on, it will give us some time to think about it before we come up here.

Natasha: What would that look like? Agenda?

Bobby: Yes that is what I was thinking of. The questions we are going to be asked.

Natasha: One of the challenges it that that does get sent to your organization before you come, and maybe that is a reminder for when you get those calls to come to the TK Panel, that you go in and physically ask for an agenda.

Bobby: Sometimes the organizations don't do that, sometimes we don't get these. Maybe individually of us, there are 3 or 4 of us, maybe we could have them.

Natasha: Maybe it is a reminder to double check, but at least you know that stuff is there a good week before, ideally. So double check before you get on a plane. The next one, I added the word again, again the TK Panel continues to want to meet more frequently. Heads nodding again.

August: Two meetings a year now, starting next year or when?

Joanne: These are recommendations we will be presenting to Gord later this morning so we want his response on that. We don't know, that is up to Diavik.

Natasha: So this last one we put up here so we could discuss it a little bit, someone made this recommendation to me in a side conversation: New people who attend the TK Panel for the first time must look at previous reports before participating. What was suggested to me when there is a new member they might go into their organization office, ask to look at some of the previous reports, and even though the reports end up being super thick, the first 10 pages are the most important, people could quickly read those and get an idea of what the panel is about. Again, this came up as a side conversation so is this something you would like to put forward? I am seeing one nod, what do people think? Everyone in favor? [Hands up] Ok good stuff. The next section will be the formal recommendations that Diavik will have to respond to.

August: Yes, like I was saying we come from all different communities, we all want a couple new youth. 1 girl and 1 boy from each community. That is for the future, thank you.

Joanne: [slide 10] When we broke into two groups, we started going in separate directions a little bit so we want to review these recommendations to see if we can bring people back together again. So this first one, I think both groups agreed on that one yesterday. Everyone good with it?

Nods

Joanne: [slide 11] The second one, everybody good with that?

Nod

Joanne: [12.4] The third, obviously we aren't going to be here for the 6 months, but we want at least one TK Panel session held at that time [the pits are filled with PK].

Shirley: Two - that would be two separate occasions.

Joanne: Ok so we want to be here for both. Which means two separate panel sessions. [slide 12] Everybody good with that?

August: Yes

Joanne: [12.5 reads aloud] Good?

Nods

Joanne: [12.6 reads aloud]

Bobby: Can we also put ice thickness in there somewhere?

Natasha: Yes, good point.

Joanne: We will add that in. So again, that is in and outside of the pits.

Natasha: A reminder we had 2 formal recommendations of watching wind in the pits from TK Panel Session #11 so this builds upon those 2 recommendations as well.

Joanne: [12.7]

Shirley: Isn't that a repeat?

Joanne: Yes, that is the same as before. We can take that out. [deleted 12.7. New 12.7 The TK Panel would like Diavik to test water in the pits...]

Wayne: I just don't see how adding something to the water, be it tea, hot chocolate or coffee, is going to help with the taste of the water? It masks it as anything else, so it should be pure water.

Joanne: We do that too at the fish camp, we could add it to the list. This is one of the things we do is test straight water, that has not been boiled, straight out of the lake. So we do say using the same protocols as we do at the program, so obviously that is in there.

Natasha: Every time we get ready for the monitoring program, the next one is 2021, we review the proposed testing methods and tasting methods. So maybe that would be a time to talk about it?

Joanne: Does everyone want to include drinking the pure water straight from the water source, not just making tea with it?

August: Next time you go to the fish camp you aren't going to be drinking anything but water Wayne. Those words came back way back from when we started. Now it is going on the wall, all those words are coming out of what we had said, so I really appreciate it, so thank you.

Nancy: It could be your choice not having tea or water because I only drink decaffeinated tea, so I only want the water. [Laughter]

Wayne: People can drink coffee or tea or whatever, for the initial testing of the water it should just be clear water, no additives to it.

Janelle: I think the idea behind the tea for tasting is because we drink snow water back home, and when you put the tea bag inside there is no gloss on top, but when you use tap water, there is a film, so I think that is a visual for the elders to see that. That is just what I know.

Mona: Janelle just said what I was thinking about. Sometimes we are told we are to boil our water. For us people some of us don't drink the tap water, we use ice or snow. I wonder how far they could test the water, will they be testing it all around, or many miles, how far, if it is going down to the river? This is our water, that is why.

Natasha: Maybe during the break I can pull up the map to show the aquatic testing sites they are required to sample.

Nancy: Before we left here there were a couple ladies who were testing our river in Kugluktuk. There is always someone testing the river. It doesn't have to be Diavik, but there were some ladies testing our river back home.

Joanne: Ok, everyone ok with this now?

Nods

Joanne: [12.8]

Louis: Talking about the water sampling and, where you had to test the water before we drink it so we know there is clear water, and the water doesn't travel, and they travel by the lake and shore so and after that water goes out in to the middle of the lake and the animals, they go down wherever there is water, caribou drink water, and maybe the water is not good, I am sure all the animals would get sick, so there needs to be monitoring of the water. And the slime, the PKC, that we are talking about, it is going to be in the open pit, how about by mistake they are going to go in the water, how is the water going to be?

Joanne: Thank you Louis. So what we are saying is that we need to make sure the water is good before there is any breach to the dike, before water can flow back and forth between the pit and the lake. So that is our main concern and if after 2 years, after they put the water in, and we are still not happy with what the water looks or smells, we can ask Diavik to hold off breaching the dike. It doesn't have to be done fast, we could wait a number of years, we could wait as long as we need to wait, until we are satisfied. If there is a problem with the water inside the pit, we definitely don't want that water getting out, so we would recommend it would not be released and allowed to flow back and forth. You good with that Louis?

Louis nods head.

Joanne: Ok, any other questions or comments about this one?

Bobby: That water, in case it isn't going to be drinkable for a few years, I'm wondering, maybe if they could have the water, run it through the water plant again and then put it back in the pit, maybe something to think about, because that might help if it the water is not getting clearer, and not getting as good as the lake water, maybe we could run through the water plant again and then put it back in the pit and see what happens to it, and make decisions after that.

Joanne: That is what we can ask Gord to see if that would be realistic. [12.10, 12.11] I discussed with Gord this morning the primary concern of letting fish in the pit where the PK is, and he said what about the second pit where there is no PK, how would the panel feel about the allowing fish into that pit. There is no PK, and it provides us an opportunity to get some experience with fish habitat building fish habitat in that second pit, A418. So I told him I would run this by you and see how you feel with that.

Bobby: To me that seems like a good idea, so that the PK and slimes are not going across. Maybe the piping will go there and change the colour and turbidity, and the temperature as well.

Joanne: Any other questions or thoughts? So if you are comfortable with that as an option, we can add it in to the recommendations. Some people are nodding, is everybody ok with that?

August: I don't really understand how it is going to work. Like you are saying the small one you are going to fill up with PK? So are you guys going to do it at the same time, the water? You are going to leave that for long? You aren't putting fish in there right away?

Joanne: That's right. But what Gord is suggesting is this is where the slimes are, both pits are going to be filled at the same time, but there is no way the water can go between them.

August: Both sides just monitoring for 2 years, one with fish or no fish at all?

Joanne: Right, after the water is filled, no fish immediately in either one. And if you decide if you want fish in this one, the one without the slimes, one to think about is if you want them to build the fish habitat, so once you are satisfied the water in there is good, then you could open the dike, you can breach the dike, and allow water to flow in and out, and at a future point after that, you could decide to open it up for fish.

August: So now I understand, so you're talking into the future.

Natasha: The other possibility would include enhancing fish habitat elsewhere, somewhere else in Lac de Gras, somewhere closer to the community. When I reviewed the notes yesterday, I'm not sure if we got a clear answer if people would like to see fish enhancements closer to the mine or see them closer to that communities. I don't think we have to make a decision on that today, but it I s good to hear your thoughts.

August: The fish habitat you are talking about, you could do it right away, good to do it earlier than later so we know if it is going to work about.

Joanne: If they are going to do any fish habitat, they are going to do it starting this spring.

August: I would like to stand beside it and see the fish habitat they are building. We all want to see it, thank you.

Bobby: Can I just remind everyone that this idea came from DFO, if you can't fix one area, go to another area to create another area. That came from DFO, not from any of our groups, maybe to make themselves feel comfortable.

Joanne: Yes. By DFO law, Diavik is required to enhance fish habitat some place in the north. Where Diavik does it, is up to them, the communities around them, the panel, and ideally, we come to the same conclusion about that, and I'm not sure that doing the fish habitat here uses up all the requirements by DFO?

Myra: Because we took out habitat from the lake, the fisheries act requires us to replace it. That is where that comes from. DFO used to be quite restrictive that you had to do it at the location that was impacted, but as Gord said yesterday, they are becoming more flexible if the community wants to look at alternate discussions.

Joanne: Do we want to make that choice now, to build fish habitat in the one pit where there is no slime? August thought that was a good idea, Janelle thought it was a good idea.

Roger: The smaller pit will be filled, and what about the other pit, just pure water?

Joanne: Yes, nothing added.

Roger: Before breaching you will probably have to test the 2 waters and see if it is healthy or not.

Joanne: Yes both pits will still be tested for water quality, the difference is the one without the slimes would have the fish habitat built into it because they have to do that before the water is put in. They will monitor it, and at a certain point you can decide, we are satisfied with the water quality with the pit and want to open it up to fish.

Myra: Maybe just a reminder too, if the criteria we are trying to develop for monitoring will be regardless if we put PK in the pits. Remember this is all under environmental assessment, so it is possible this may not go ahead, but we still want the communities' recommendations on how to proceed.

Roger: Ok thank you.

Joanne: Are we ok with that one?

Shirley: I think it should be clear if they have to do the fish habitat by the spring, we have to be clear if we want it to be done. The wording needs to be definite now. I agree with 154.

Joanne: Ok number 12A, option 1. Do not allow fish passage through dike.

Shirley: From what I understand from previous recommendations, there will be no passage for fish for either of them until we know for sure. So it is conditional. So when you say no fish passage, it sounds final in that passage.

Natasha: This is where we need to spend some time talking because in the men's group they voted and it was unanimous that they don't want fish to come back to the pit that has PK in it. The women's group, on the other hand, said they would be ok with fish coming back, so this slide is honing in on both of those directions saying option 1 is do not allow fish passage through dike. Option 2 is honoring what the women said, allow fish passage. Option 2 is reflecting what the women said. Let me back up here a little. The men's group voted and said they didn't want to have fish to go back and forth, but if the group as a whole said they wanted fish to be able to go back in, they came up with how that could happen.

Shirley: We had an issue with contained water, you need the flow of water to survive, I don't think we agree with putting fish in before the dikes being breached, and we didn't know about the gates, but there would have to be water flow first.

Joanne: Just to add more complexity, I asked Gord this morning if they would be willing to consider 2 stages of breaching. So if they did the first stage, it would allow water to flow through, and not fish, and created the oxygen levels and everything we feel is needed for the fish to be healthy, would they come back and do another breach if we go to the point where the panel thought the water would be ready for fish. And he said yes. A few people nodding their heads, they are happy with that idea.

Janelle: I think because we were so focused on 418, we haven't even thought about the 154 pit as another place for the fish to go. We hadn't even discussed 154, so I think our group was focused 418 a place viable for fish to go through. I think the happy medium is 154 is an option for the fish, so I am ok not allowing 418 fish to go there, if we can create a natural state in 154. Gord should have told us this information a couple days ago. We hadn't thought of 154.

Natasha: What do the men think of that idea? Should we re-write this and just say, we don't want fish back A418, but we do want the possibility of putting fish back in 154 assuming water will be monitoring for the 2 years beforehand, assuming the habitat enhancements are done, so that we are comfortable with the quality of the water. Are we all on the same page?

½ hands up

August: We can't figure out what the women are saying. 2 pits in the water, one with the slimes and one with nothing, and in 2 years you put fish – why don't you put fish in both of them so then you will know? I know we said no yesterday, but then if we put fish in both and something happens in one, then we know.

Joanne: So that is yet another option. So August, with that idea, putting fish in both after 2 years, might be longer than two years, once you are happy with the quality of the water, you are saying you would put the fish in the pit from Lac de Gras just to test the fish to see if they are ok or not without opening the dike. And after a number of years you want to take the fish out of both and compare them with the lake fish?

August: Yes.

BREAK

Natasha: Here is a sign in sheet for which report you want and whether you want it emailed, on usb flash drive, or a physical hard copy. We will collect this at the end of the day, and people can fill it out.

Myra: I also printed 10 of the TK Panel 11 report for those who had asked for it.

Joanne: My understanding is that the main concern is the slime. Rather than putting the number of the pits in there, identifying the pits, because it is not clear, Diavik has asked for a license that would allow them to put slime in more than one pit. That doesn't mean they are going to do it. So rather than name the pits, we could just say, where there is slime in pits, here is what you should do. Would that be simpler and clearer? So that again that is based on your concern about the slime and that if there is a pit or 2 that don't have any slime in them, you are open to creating fish habitat and allowing fish in. It is a question of when. I hope I haven't complicated things further but that is reality. So no fish passage through dikes where there is PK, so that is the bottom line. How do people feel about that? August started talking about maybe introducing fish in the pits where there are slime to compare pits where there are no slime and to be compared to fish from the lake. What do you want to do with that?

Rose: I prefer what August said.

Janelle: So you want to see how fish do in pits with slime and without slime and compare those fish to fish from the lake?

August: What I was saying is the big one you are going to have fish habitat too, and the other one with clear water. So the fish habitat, leave it the way it is . . .

Joanne: So go ahead with the fish habitat, work on the larger pit where we don't think there will be slimes?

Myra: We are in an environmental assessment right now to put PK back in the pits. When we initially put the proposal forward, we were looking at all the pits. Communities came back and shared a concern with A21, it is shallower. So Diavik listened to that and we took A21 off the table for putting PK in. There is a lot of room in 418 to put the PK back that we have identified. So that is all the room we need for now. However, if in the future there is some more, is there another pipe we find or more development, we have left 514 on the table just so that we have that approval so we don't have to be go through the environmental assessment again. As of right now it is not part of the plan is, but we just wanted approval for it just in case.

Wayne: When it comes to mine closure, with everything said and done, is that pile of slime that is on the surface, is that going to be completely gone? Is there enough room to put the slimes in all 3 holes?

Myra: There is enough space in one of the holes. That has been identified and required for what we have.

Wayne: Will that one hole hold all that slime?

Myra: Yes.

Joanne: So August is suggesting that when you are ready to allow fish in the pits, with or without slime. If there is slime in one pit and only water in the other pit, he would like to have fish put in both pits to compare them. So you would want to do that for a few years to see how they are doing?

August nods

Joanne: And then check on the health of the fish? If there is a problem with the fish from either pit, that would give you information to make decisions on where to go next, whether or not to breach or to leave the dikes closed. Is that right?

August: Yes

Wayne: I'm for that.

Joanne: Nancy also says yes.

Shirley: Just to clarify, is this after it is breached for water flow between?

Natasha: Yes.

Shirley: Ok, then yes. So August, the fish can go in the pits after the dike has been breached?

August: There will be fish in the big one, and then 2 years later, if the fish are good, if they are healthy, then we can open it.

Shirley: So you would have no flow for the fish?

August: Both of them will be full, if fish are ok, healthy after 2 years, then you open it.

Joanne: So August, the concern is if you allow water to flow in, water can also flow out. So part of the concern we don't want the water, the slurry water to flow in to Lac de Gras.

August: The 2 pits we are talking about will be filled with water, so if it is ok to have fish in there, if the fish are healthy after 2 years, then you open here.

Natasha: I want to clarify. What August is saying I think is that you don't breach right away, we still monitor the water for a 2 year minimum. And then, when we are comfortable that it is drinkable, we add the fish to the pit. Then we watch it for a couple years, then we see.

Shirley: My concern here is that the fish got put it in it, then construction for 5 breaches on the dike to allow the water to flow.

Natasha: No not the water, the water has been flowing for the last 2 years already.

Shirley: So once it is breached, you put the grates, and then you introduce the fish? Ok, that is all I wanted clarification on.

Joanne: I think one of the issues that the women had was if you don't allow the water ahead of time to flow and to get the nutrients and the oxygen into the water, then that is asking for trouble with the fish.

Natasha: The men talked about that as well and understood that.

Louis: Yes we mentioned this yesterday about the PKC slurry that is going to be putting in the undergrounds. If the water goes into the open pit, the smaller of the pit would probably be good to only put water into it, but the bigger open pit maybe wise to put the PK back in that one. In that way once the water is filled into the open pit and the habitat, the fish habitat could be put into that open pit and then fill it with water and monitor it, and that is how we have been talking about it. So to monitor and test the water and breach the dikes, and if the dikes were open in a matter that is deep enough for the water to freeze over the dike and then the water would flow back and forth, but if that opening on the dike freezes, it might not be good for the fish for its habitat to flow back and forth. So I just wanted to mention that.

Joanne: maybe what we should do is have a show of hands on one question at a time. Are people comfortable with allowing or putting fish into pits where there is PK?

8 hands

Joanne: Ok we are clear on that.

Natasha: Next question is, is it respectful to have fish in pits with PK? I am seeing headshakes, so I feel like we are not agreeing on this yet. I am making things difficult but I'm not sure we have consensus.

Louis: Once we put the PKC slimes underground it will be very deep and it isn't going to move, it is just going to be stale, the weight on the PKC slimes will keep it down, and if the fish - because of the depth of the water, the PKC slimes will not move that is what I am thinking and the reason I am saying this.

Joanne: Thank you Louis, everyone is good?

Nods

Joanne: Now it reads [12.2, 12.3] Are people ok with that one?

Nods

Joanne: [12.14] Ok everybody good with that?

Nods

Natasha: I was asking if people wanted to offer any detail around that monitoring, just to make it a stronger recommendation. Like how, how often, through which seasons, should we be adding any of those words?

Wayne: Maybe we should do it right in the dead of winter and spring time when things are moving and fall time just before it freezes up.

Joanne: We would have to come 3 times a year, is it realistic?

Shirley: It's kind of hard to monitor plant and bugs in the winter.

Louis: Yesterday on our trip around the dikes we see these nests of birds or maybe – what would happen to the nesting once the water is filled? Will they remove the nests prior to filling it up with water? That might be disturbed.

Myra: Yes, we would remove any nests that we would find prior to filling. I wish Sean was here to answer that question.

Wayne: The reason I mentioned 3 times a year here is that the planes come in early and same day they leave. Catch an early flight in, do the testing, and then go back. Not overnight here.

Joanne: How do other people feel about that? [no response] Anybody else? Are people comfortable on voting on that?

August: Talking about flying species around. If it eats something right now around there, if it is a poison they will die. But they will fly away, so how would we know? We have to think of ground squirrel, caribou, fox. The flying species are very different, thank you.

Joanne: Roger, this one apparently came from your suggestions in the men's group. How do you feel about how it is written? Does it reflect what you are looking for?

Roger: Well from what I said this is written different from what I said, but for the plant life sediment and bugs, usually spring time first when everything melts, and then the summer when you can see all the bugs in the water, and then fall before it freezes. There are no bugs in the winter.

Natasha: Roger, I want to get the words right so can you help me write this in the way that you said it yesterday? What I heard you talk about is: we have toremember that wildlife, birds, etc. must be watched to see if they drink from pits. But how? What about the fox, birds? Test the animals if possible?

Roger: From what I said, by monitoring is what from those 2 years – if the water is in there – if one of the animals drink the water, what I was trying to say is we can't see everything 100%. If they do drink the water, part of it – I just started off small, there are ground squirrels, you can't

see them all the time, they are small creatures. I was trying to say the food chain, the prey, the falcons and the birds, foxes they will eat them. We won't be sure if that ground squirrel is sick. How would we know that – if he has been eaten by the predator, and if they end up dead of course they will be tested, but for birds, like August said, when bird eats poison they will fly away, end up going somewhere and dying somewhere else. How would we know that – one of the animals there will pick it up and eat it. So we won't know because we don't see everything out in those barren lands. That is what I was trying to say.

Joanne: So perhaps maybe what we could do modify 13, take 14 off completely so what you would do is get regular reports from Diavik in terms of what they have seen by the motion activated cameras and if there is animals or birds that are trying to get near the pits and in to the pits, we would want to know that. Or do you still want to think about having people come and checking it out?

Roger: If that does happen, if it is possible. If it does happen, will the communities – if that report goes to the communities, or do you guys just keep it to yourselves? Because the people need to know if this happens, because we need communication between communities and if it does happen, because we are all here together for the land and the animals, fish.

Natasha: Ok so Roger I added ... report findings to communities. Should I delete test animals and any dead animals to be tested for contaminants?

Roger: You could keep it as is, but I like the idea of motion cameras.

Mona: To add, if any animals are found dead or if they have been killed or accidently killed, the elders report them to KIA lands office, so us people from there they should let us know too about what is going on at the mines. Thank you.

Joanne: So we are good for 13 then?

Nods

Thomas: I'm just worried about the wording in 14 "monitor nests on pit walls." Once the pits fill, there will be no nests on the wall anymore.

Joanne: Yes, the nests will be removed, so we can take that out.

Thomas: Perfect, thank you.

Joanne: Everyone good with that?

Nods

Joanne: Last one [12.15]. This is something we haven't developed yet but there is a need to do that.

Natasha: So the way it was reading, AEMP just meant the program, but you guys meant the physical camp as well?

Joanne: Both. The women's group mentioned that they wanted to participate in the camp. And we want to build on that program, so that our own people are trained to do the scientific monitoring as well. It would lead to skill development and employment for both elders and young people in carrying out that monitoring.

Natasha: So I am just suggesting we maybe make it stronger and put it in the guidance as well and so I've gone back to the first slide and added: "We want to build on the existing aquatic effects monitoring program and camp to expand TK testing and to build scientific testing methods and skills with young people."

Joanne: Carrying that idea forward of knowing 2 ways in the future. Everybody good?

Hands up

Shirley: Is the TK Panel already included in that monitoring program?

Joanne: There is overlap in membership.

Shirley: So should we be more specific?

Natasha: We would have to go back in the notes. We have talked about this at length in other discussions. I don't think the panel should dictate who should be at the camp. I think what was mentioned is the communities want to send their experts but it just so happens the experts are usually the same. I might be overstepping, but I think it is up to the communities.

Roger: Just an idea from when August talked yesterday about future TK panels. That would be nice to have a youth boy and girl to have best ideas from both groups.

Natasha: Thank you. The reason we didn't include it is that it's still a recommendation from previous sessions. I will add it as a guidance. Before we call Gord in, please think about everything that has been talked about in the last few days and make sure we have everything. Is there anything we haven't addressed?

Shirley: Roger mentioned, or you said that there was already a formal recommendation for the youth and yet that still hasn't happened?

Joanne: Part of the problem is that it is the community Aboriginal governments who select people to come. You really need to raise that with your governments to say this is really important and here is why it is important and please take our advice on that.

Shirley: Are they under the assumption that it is 2 youth?

Natasha: The way the panel is set up there is 3 people from each community that are funded to come. So there was a recommendation that there be a balance of men and woman both as youth and elders. So there are 3 members and, if needed, 1 interpreter. The panel has made these recommendations and ultimately it is up to each organization to make the decision. Likewise, it is up to the communities to have an alternate ready to go. I know it can be a challenge just to get 1 youth. I think just like everything we have talked about whether it is getting copies of reports from your organizations or attending the TK Panel sessions, it's up to the groups how they want to move forward, who they want to send.

Shirley: Balance is having male and female of each youth and elders.

Natasha: It is just a limitation - there is only space up to 4 with an interpreter. Usually they will find that balance with that interpreter.

Myra: This is really up to the TK Panel members. Diavik hasn't made a decision on the demographic who should be here. It is up to the group who they should send. Going back to the earlier days, it is a full room, we could go into the gym but then it becomes a different dynamic. It's that balance that the group is trying to address.

Joanne: Organizations have been encouraged to identify 2 youth – 1 as an alternate. So presumably they would identify 1 male and 1 female youth. And similarly with elders. Identify 1 female and 1 male. Sometimes we get it and sometimes we don't.

Wayne: We have come up against this before a few times before. The trouble is the kids during the summertime they need jobs. And wintertime they need to go back to school. So it is very hard to find someone to attend these meetings. This has been happening for years now.

Janelle: I am just curious how we identify youth? Is there an age category? I know it is an epidemic in my region. There are a lot of youth that aren't doing anything who are wanderers who don't have goals. Maybe this in turn could help them. I bet there are youth from other regions who aren't doing anything. I bet teachers in high school would be happy to have them come up here. And it is on a weekend. So maybe it is up to our organizations to figure out who should come.

Jonas: Good morning. I come from a community I asked the chiefs who is going up there. He said it was up to the community liaison of the mine. We have a liaison; they are the one who says who they are going to go. It is up to the liaison he said.

Joanne: That is because your government chose to let that person take that on. It is still – if they say go ask the liaison, they have decided that is how they want to handle selecting people. I have heard Łutsel K'e say they have the lands and wildlife department they have been the ones selected to choose the elders and youth that are coming. So each government has their own way.

Jonas: Those kinds of people, they should have come to the chief and council's agenda.

Natasha: I made a mistake and went 4 years back into our notes to find this formal recommendation. The formal recommendation from session 8 is: ensure 2 elders and 2 youth from each group attend future camps and meetings. Diavik response: It would be very beneficial to have TK member s....the TK camp is small. Most community organizations can send 4 people to the camp. Usually 2 elders, 1 youth, 1 interpreter. Should an interpreter not be required, Diavik would consider 1 youth. So I can add this again to the guidance to remind ourselves and Diavik what the commitments are. I am mindful of time to present this to Gord, I want to check in is there anything else is missing?

BREAK

Presentation of Panel Recommendations to Diavik

Youth present recommendations to Gord M.

Gord M: So action plan, I like your guys' words about action plan. In the science community they use adaptive management. You are saying if we see something what are we going to do about it. I like that it is in steps and you learn from the steps. And at each one of those locations that you aren't expecting that is when you take the action. That is what I understand from that. And it goes down to if the fish are ok at the end? The second one is very interesting – when is it that Diavik is done, and if we are done, but you guy still need monitoring needs to be down every year indefinitely, who is responsible for that? Did you talked about that at all?

Natasha: Instead of indefinitely, the word was originally forever. We had the discussion it is not necessarily Diavik monitoring forever, but it is something communities need to sort it out if that is the want.

Gord: But if communities are going to do it, it isn't free, and someone needs to pay for it.

Joanne: They might, and they are developing capacity now to develop guardianship programs, that employees have similar dual approaches: TK and western science. And so we would see building on that momentum that is developing. There are also resources coming in from all sorts of government to support that. We see that it is realistic.

Gord M: That will be a good one to follow as we develop this further. So this one is a bit new to me you are including in visual things like models and animations not just going outside to see it, that here is another visual piece more like those but much better than my art [on the board]. So that is new to me. I understand that. It is helpful to know that. Particularly with animation I think there is much better job that we can do there. So 8.6, the request is to have 4 versus 3 members?

Natasha: We had some discussion about this. The Diavik formal response - we just read this out loud. So here is 8.6 and there is Diavik' s response. It is centered around the youth wanting a gender balance of male and female, and in the end, where we landed was that the max was 4 people and ultimately it is up to communities to make that decision. It is generally 3 participants plus an interpreter.

Gord M: Ok got it, thanks. So the one I had in here was colour (1*2.5*). Is it colour or is it clarity? How far you can see in the colour or whether it has a colouring to it? Colour is an actual measure of water. We haven't looked at it, but it can be done. So maybe we should make it colour and clarity?

Nods

Gord M: [12.7] So this would be your own visual of it is clarity versus the science of the clarity?

Natasha: This is water monitoring according to TK. This would be how people would propose to test the water themselves.

Gord M: How would smell, clarity be done?

Natasha: According to the Aquatic Effects Monitoring protocols and what you just described.

Gord M: [12.8] So is stable the consistency, between seasons, is that what people mean?

Joanne: Would that help to add consistent to stable?

Nods

Gord M: 12.9 I thought we could start on the fish camps every 3 years; we start doing the collection of fish around the dikes at that point?

Joanne: That came from the women's group and that is what we had in mind.

Gord M: That would be a logical step, to start doing that. Ok so now we have a difference between 154 and 418, and we are saying where the PK would go and wouldn't go.

Joanne: I thought we changed that. What we wanted to be clear is that any of the pits that PK in it, would be treated differently.

Gord M: Is the opposite of that what we wouldn't do anything for the pits?

Janelle: We still want to monitor everything.

Gord M: Yes so the ones with PK have extra attention, and we do the same thing for all the pits whether it be PK or not?

Shirley: We were talking about those 2 pits specifically, we agreed to put the fish habitat in the big one.

Joanne: The idea of putting fish habitat in the large pit was clear, and not in the smaller one, and that whole discussion happened before we learned that you may want to out PK in both pits.

Shirley: Maybe we should put it to a vote?

Gord M: I think it would be very low chance we put PK in 154. If that ever came, we could come back and talk about that. It would be helpful if there is no PK in A154 is everything different.

Shirley: It is the same because the fish habitat, we need to decide on that because you guys need to start in the spring. That is why we're specific to go ahead on the big one.

Joanne: I think there was interest in the group because we are in a position to compare the habitat construction has made to the health of the fish and whether there is actual differences between the fish and their behaviour and their health.

Gord: Sorry, to be clear, there is still a chance from the outcome from the monitoring on the bigger pit would still say don't allow fish in. That risk is still there.

Joanne: Yes, that risk is still there.

Gord M: Thanks. I really like the two-stage reconnection plan where you connect water first, then you check fish, and if fish are ok, then you let it go. So now we have some new monitoring here on plant life, sediments, and bugs. Has anybody thought about what that is through your own eyes? I know what the science would be for that, but are there thoughts on how to do that on your own eyes?

Nancy: Yes, that would be helpful to see with your own eyes because they don't do any other way.

Gord M: Those would be good things to start talking at another session and maybe we need to start building into the camp to start looking at other things and build the baseline.

Natasha: We did try to take that deeper a little bit but at the end of the day it was that people want to get out there, see with our own eyes, but maybe it would be easier to develop what those indicators might be when we are out there working.

Gord M: It is important for me to understand what you are looking for because we have to create a forecast to see if the conditions are going to meet your criteria. That is my reason, I have to make an informed guess of what the risk is going to be if that doesn't happen. It would help me to see how you would evaluate that.

Joanne: Yes, further discussion and the opportunity for that would be great.

Gord M: That is the kind of thing what do you see here that you say is not good water. Teaching me that would be very helpful.

Joanne: I have noticed elders mention bugs in the water, but we haven't figured out a way to record that.

Gord M: Yes I really like this. Expanding this camp beyond fish testing, looking more at TK monitoring is a logical step to be able to apply it to different closure aspects. I think we will definitely reframe that for the 2021 camp. One other thing I hear through this, it isn't just this TK panel, how do we get community members and youth up doing monitoring continuously. That will come essential as we come into closure. Thank you those are very comments, they are very helpful. I know this wasn't an easy session. I think it'll help the regulators and the other people will have to use this information too. Thank you for your times and energies.

Joanne: Any other questions for Gord?

Joline: Gord, when we went underground last year and the underground engineer, do you remember his name? Richard or – the one that took us underground. He mentioned that he had a couple sea cans where he was collecting scrap metal donating to different communities. I brought it up in May to see who we can address the letter to. If it can be donated to one of our Ti₂cho communities I would like to put a proposal in for what we may need for our facilities.

Gord: Myra is the one to talk to – we will get you that contact. Sorry, I thought that was addressed.

Joline: if you have that information maybe you can present to the next session next year so other youth for their community can request that.

Gord M: Good idea.

Roger: I was just wondering if there is any First Nation members on the closure team? Someone to report to the communities about information about information about this? Is there anyone full time? We have meetings back home and reports, we often go back home and report back from these Panels, but for each of these communities, is there anyone to report on a daily basis? Because usually we are in the dark until we come up here. People back home ask me what I did up here, but it is important for the information to have out in the communities. Is there anyone full time to do that?

Gord M: There are liaison officers and there is supposed to be one in each community (the broad definition of communities). We have had a tough time filling all of those roles. We haven't moved them in to closure, but the goal right now is to still get people jobs here at Diavik. It is coming in the next few years because I still want people to think that Diavik is a place to work. That is the right avenue, through the liaison. I don't know if it is working correctly.

Roger: People always come to me to ask them what has happened. It is good to have the information out here even because the mine isn't going to last.

Gord M: Would you ever be comfortable on doing a presentation on what happened at the panel, with one of us there, would you ever do a joint presentation?

Roger: I wouldn't mind, if it was organized like this. We can say in our own words.

Gord M: I would be willing to ask Natasha and Joanne, what if we make a presentation file that anybody from the panel can use to what has happened here in the community? If you want me to come, or Myra wants to come, we love to come to the community, we would love to come.

Natasha: It would be fun to work on it together. I'm grateful to Gord because we forgot to add a central web-based location for people to be able to access all the reports and all of this information. We don't know what the best location for this would be – whether it is on a Diavik server, Mackenzie Valley Review Board or ? I think that has come up that is definitely needs to happen.

Gord M: What I would suggest is we have EMAB, they have a website, that is one of your responsibilities to disseminate the information.

Janyne: I know right now, John, the director, he is in the process too – he also has a hard time to get all the TK reports – we haven't been able to find them all either. A lot of the ones he has found are draft copies from EMAB.

Gord M: We will undertake to get reports to EMAB. My recommendation is to put them on EMAB website. I will formally put that request in to EMAB.

Janyne: Just to add to my knowledge, we have uploaded the tables that we do have. I believe it is allowed for us to add it up there.

Natasha: So we circulate that paper to clarify who wants hard copies and we will follow up with a hot link, do we want that as a formal recommendation to require a formal recommendation?

Nods

Joanne: It sounds liked a pretty positive response. It wasn't easy, it is probably the most challenging one I have done so far, so I really appreciate the patience of everyone. Thank you for providing us with the information we needed to meet our goals. Is there anything further that people want to communicate? With Gord?

Janelle: You have that sign downstairs, the thing about legacy and how Diavik wants to leave legacy. All the elders and youth are here to build your legacy. So you should want us to walk around as your legacy with jackets saying TK Panel.

[Laughter]

Joanne: So Natasha has developed a new recommendations about the central online location with all TK Panel materials. [Reads it aloud]

Nancy: Before I go home, I would like the copy of this [recommendations].

Joanne: We are going to print the guidance and the recommendations for you to take home today.

Natasha: There was one more question for Gord.

Gord M: If TK panel isn't satisfied with the water, can it be run through the treatment plant? The answer is yes, we could put it through the water treatment center. If there is really bad water, that is what our contingency plan would be.

Natasha: Does PK change whether in the pit or the tunnels?

Gord M: I don't know if it would behave differently in temperatures it might be more time to move it in to the tunnels. But otherwise thermally it should act the same.

Roger: I was just thinking if it will seep and go down slowly, I know the tunnels is softer rock and it is not in permafrost, will it sleep out slowly? It's a big honeycomb in there.

Gord M: It is the same solid rock as the middle, they are just drilled around.

Roger: I don't want it to seep into Lac de Gras.

Closing Circle and Prayer

Bobby: This time, this session here was a really good session again, we have had a lot of good success in what we wanted to do and what has been committed by DDMI to make our minds at ease, a lot of good recommendations, and he already agreed to a lot of the good work we have done. I know everything is changing session to session sometimes and a lot of clarity came through this panel in meeting with Gord. We have always worked towards this in the past sometimes we get really jumbled in some things, but I noticed this group this time did a really good job putting together a proposal for Diavik to think about. Can I have one last request for Gord? Remember that hole we were looking at yesterday, the bottom of the pit. My dad's lure went down and touched that very bottom. On the side there were baby birch trees around there. I was wondering maybe you get a piece for me to take home. That was the exact place as a little boy I would slide down with a caribou hide, I would like to have a little piece before it is all destroyed, I would like to take a piece home. It's going to be destroyed. At least, even last couple of years, I at least touched that water that was in there before it was all drained out, and the very water that was there in the past, where my dad touched, maybe it is still in there, that made me feel a little bit better. But this time I looked at it again. I had a dream, looking over it yesterday me and my dad again. I haven't dreamed of him for 8 years. He hasn't spoke to me, until now. He spoke again through my dream last night. So I would really like to have at least of a piece of that baby birch to take home and maybe live with me for the rest of my life. That would be really appreciated.

Nancy: I'm so thankful for KIA for letting us come here. I am thankful for everyone in Diavik to provide this and be in one place. I would like to thank the interpreters, it is good to see everyone again. We all get stronger from coming each time. The North Inlet, that I my big concern because it is the most contaminated part. I am happy what everyone did here, I am so thankful for everyone, especially the youth. The youth might not say anything but the more they hear, see what we are doing, the elders, they will be stronger for the future. Once even if they don't speak it, they get older, they will be strong and like us again because we won't be here. They are youth, and when they hear elders talking about and hearing it, it makes them very strong for the future. In the future they will replace us, so I am so thankful for all the youth that come around. I can't wait until we start working on the North Inlet because I am very concerned about that. Thank you so much.

Wayne: First of all, I'd like to thank Gord for his feedback and his patience. The facilitators who did a bang-up job, Myra for her inputs, she did really well helping us, the interpreters, especially Peter there offered some medicine for the cold, and everyone who attended. I think we had a fairly good meeting and I wish everyone has a good safe trip back home.

Shirley: This is my first time here, I am not a youth, I am an elder in training. I am very impressed how everybody works together respectfully. This was very productive. I am so grateful for being here. I would like to thank all of our support staff. I look forward to seeing these recommendations playing out in the future.

Roger: Thank you to Gord for putting up with us, answering our questions, facilitators, Emma for writing it all up, Ryan the sound guy, the interpreters, everyone giving their input, listening and learning from this panel and it is really good to be here. Thank you for inviting me and for the hospitality. I want to thank the elders and the youth for being here. It is good experience for us down the road to carry on this information. I wish everyone a safe trip home to their homes, and it is good to see everyone here working together as one community and trying to work this out with Diavik. Wish everything will go smoothly in the future panels and I wish the best for everyone. Thank you very much.

August: Mahsi cho. Thanks for last day here now. I am really happy this week being together. Like I was saying it, there is lots of words working there from way back from the elders that aren't with us anymore. I am really happy with that. I hope everyone go home safety. Thank you to all the ladies smiling at me, that keeps me strong. Thank you very much.

Jimmy: Thank you for being here for few days. I appreciate everybody. I'm glad I have been here. Thanks a lot. Mahsi cho.

Jonas: Thank you. This is our ancestral land, we have to remember our ancestors and we have to value our TK and it seems like in modern days there is scientific and all this money industry taking over the land. But in the past our ancestors worked very hard, you know, and we have to remember them. But today in the modern times everything is easily been done. At the same

time we spoke about the closure plan, how we work with the fish, water, aquatic life, and we had a really good meeting together.

Louis: Thank you. Throughout the days that we were here we spoke very well and I am very thankful at these meetings when we speak it is like teaching one another, and I am learning from one another. I am very thankful for all the people, and the interpreters, through the interpreters we understand one another we are thankful for it. This is our ancestor's land and even though they have the transportation, lack of transportation, they never had a good night sleep and light from candles were poor in the evening, they worked on this land, this barren land, this is our land, this island is pretty well developed and it has been the land has been disturbed but we want to have a good reclamation plan and it seems like we are always in agreement and if we do good work that is what we aim for. We are thankful for that. We are representing the people at home, and those are the communications that we can reunite with one another. We have a really good meeting, the hosts, accommodations, and we are very thankful for the food.

Therese: Thank you for inviting me here. This is the first time I ever came this type of meeting. It is hard for me to speak in front of people. Next time I come I might talk, Mahsi cho.

Janelle: I would like to thank the elders that shared their knowledge and history – sometimes it is lost. Thank you for the youth, I remember my first panel I was very shy, it takes a lot of courage. Us being able to see everything and hear from peoples' perspectives has opened my eyes. And something resonated with me in the women's group. We keep Diavik to a very high standards for clean up, and I hope we can do that in our own regions that we can hold us to that type of standards because in the end we are all stewards of this land, it is our job for the land to be there viable for the 7 generations ahead of me. That just resonated with me that we really put Gord in a tough spot all the time. I'm very appreciative because if you look at Rayrock, Colomac or Giant, they just left a mess and took off but Diavik is really building a legacy. Our people may not travel in these lands, but our animals are still here. Just because our people aren't here as much, we still need to be stewards for the animals. Protect our way of life. If we see the last caribou, how are we going to teach those skills to our next generation. The way I was taught was by seeing. I was watching my grandmother making dry meat, she taught me all these things. I held my first knife and needle at 7 years old. I think we should carry on continue to be the stewards of the land, so thank you Diavik.

Rose: This is my second time here, but I am still learning on what is going on, so that is why I'm not saying much. But thank you for everyone who came here, go home safe, and thank you Diavik for their hospitality. Thank you.

Jonathan: This is my first time here. I didn't know what TK Panel was, but learning and listening to what everyone is saying, I learned lots from you guys, and I am happy to hear everything. Thank you to Gord, the communities, it was nice meeting you all. I don't know if I will be back

next year because I am always busy with work. Like what Janelle said, it would be nice for the youth can come back here and learn and keep on learning. Mahsi Cho.

Regan: Happy to attend as a youth participant and heard some good feedback from the youth and elders. It has been a good weekend spending time with you guys. I am happy to be here. Thank you.

Mona: Everybody was so kind for me, I was so happy. I am so thankful to the ladies who showed us everything, while Gord is out, while he is supposed to be out here. Thank you to the interpreters, to everybody, all the people, I was kind of emotional today because of how animals used to walk here, not only the animals but our ancestors and neighbours. My father was close by one time and one of the natives that used to come here from Yellowknife, they used to meet together. But look after our water tank, this is our water tank. For our grandchildren, our great children. Thanks, so much for everyone, have a safe trip home. God bless you all.

Berna: I am glad to come back, I am here today. I was really happy to be here among you guys again. It all depends on our health goes because we don't know tomorrow as the elders always say. What is in front of us we don't know, I hope everyone has done well, like the water and the land. It is so important for the Dene people of the north. We survive by the water even the animals and the caribou and the fish that we live off of. We try to protect the land, the water, the environment. Our country food that elders always talk about. We always have to thank our creator every day for taking care of all of things. Thank you to Gord for everyone for your team, we had a good week here, good stay, good sleep. Safe travels everyone, until next time.

Peter: I want to thank everybody for sharing your knowledge about the traditional knowledge and how we can work together. Our ancestors worked together, and we know that through that we made peace, ever since then we can life a health life among each other. Here we are making recommendations of the closure and recommendation to clean up the mine. We are doing good work. I want personally say thank you to all of your - hope we meet like this again next year, depending on our health. Mahsi Cho.

Joline: I would just like to say thank you, it is good to take part in the TK Panel. Even though I work for Tłįchǫ Government and been with them for 19 years, I've learned and gained a lot of experience through TK and work with elders and listening to them about the kind of knowledge they want to pass on. And I find that now a days we don't see very much youth participating in stuff like this. And I would also like to bring youth in and I really love the kind of work I do, I am involved in both science and traditional knowledge. I try to make stuff visual as much plain speech as I can so the elders can understand. So when I was here first time I came here about 4 5 years ago I was shy and emotional because both of my grandparents worked at Ray Rock, and outcome we all know how it ended. To see my grandparents work hard to send their children to school must've been very difficult for the them and to see them coming out of a situation out of

that and both parents going to residential school, I found it difficult for me but my parents taught me to go to school. I still want to learn my traditional way and tongue so I work with elders and I communicate with them once I am comfortable. I would just like to appreciate coming and being invited not as part of the panel but to learn from you guys how we can communicate the information clearly. I would like to thank Gord for bringing us to the process plant to better understand to see what is out there and when we are talking about the animals, we have a better understanding help you reclaim the area. I know that when industry comes or when the Europeans come, the Aboriginal people, they were all welcoming people to outsiders and that is how I feel. I would like to really appreciate you giving us the eyes on how diamonds were processed. And to also invite the youth to take part in your remediation. Mahsi.

Thomas: Thank you to everybody here. I worked for LKDFN as the liaison for DDMI. I thought I was very lucky to get the job, mostly because I am Tłįchǫ, not Łutsel K'e. I am honored to be here for both. I was really happy with our youth member Roger and all the other youth, all the elders, it was really good to hear August him talk. Diavik's willingness to open up their ears and listen to them. I have been a part of projects where the mining companies aren't around anymore. This is an amazing process and see. I want to thank everybody. I want to say Mahsi cho, thank you.

Janyne: Thanks to the panel for extending the invite to EMAB this year. It is really nice to be here and we talk a lot about the panel and come and see how it all works.

Myra: It was really difficult to make all the arrangements for you all to be here. I thought it was just another meeting, but when I saw you all at G&G getting together and greeting each other, I recognized this was sort of family and it was a really special group you have developed. I am very grateful for those who have come back year after year. You are all coming from different experiences and knowledge that you are willing to share with one another and listen, I'm really proud to be working for Diavik because you don't see this process very often. I hope I can participate in the future, and thank you for very much for allowing me to be here and to share this time with you.

Gord: I know you all want to get to lunch so I won't repeat what has been said. First of all, you don't have to thank me for being here. I need to thank you for allowing me to be able to do my job and making it easier for me.

Natasha: I am going to let the boss lady and let Joanne have the last word. Last night I was in the gym running around the track and I was laughing because Roger was doing the same thing. We kept passing one another, running in opposite direction. Finally, I thought I'd turn around to try to catch him but he was just too fast. I was thinking it is kind of like how I feel as a scientist, as a southerner, I can't catch up to the Indigenous way, no matter how hard I try, I just don't get there. A really big thank you for everyone each who contributes so genuinely. It is an honour to see the magic that happens and I am just really grateful. It is such a pleasure to work

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with Joanne and to be a part of this panel for so long. We are all looking for meaning in our work so that it isn't just a job. The fact that you put in such hard work, the fact that Diavik listens, and responds, gives me meaning in my job. It is really a pleasure. Quana, Mahsi. In the south, on Squamish territory, we say huy chexw.

Joanne: Thank you so much. This session I really appreciated the struggles that you went through and I know August as one of the longest standing members here, he made some recommendations that we don't break into two groups and we did it anyway and he had patience and the love for people to do that and helped build a consensus after. I wanted to mention we are going to be doing a workshop on caribou and taking care of caribou in early December this is not part of Diavik's plan, this is something Natasha and I have been working on. But it relates to this in terms of creating a guardianship program for caribou. And it will eventually interact with the mines work in this area. I hope to see some of you out there. It is intended to build on the strengths we have in our cultures as guardians and to bring together communities to see what we can do to help the caribou. So I hope to see you there. It has been quite something. And thanks Myra for join the team, and thanks to all the participants and interpreters and to Gord and Myra and to Sean. Mahsi.

Prayer

END OF DAY 4 NOTES

Appendix E

Presentation on PK—Backgrounder and Previous TK Panel Recommendations on PK and PKC

Presented to the TK Panel TK Panel Session #12 September 14, 2019

Pit Options



Why are we talking about refilling the pit?

- Diavik wants to put waste rock back into the pit and is undergoing an EA accordingly
- Diavik relies upon input from the TK Panel regarding options to re-fill and monitor (watch) the pit
- In the last few months, community members have voiced interests in considering various pit options as part of the EA: in response, TK Panel 12 topic was switched from North Inlet to Pit Options

Haven't we talked about the pits before?

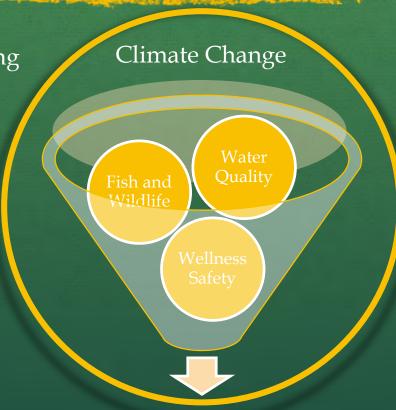
- TK Panel #6: Explored PK Containment Area (2013)
- TK Panel #8: Considered reefs, fish habitat, and water monitoring (2015)
- TK Panel Session #10: Introduced idea of putting Processed Kimberlite (PK) underground (2017)
- TK Panel #11: Focused session on PK Options (2018)
- TK Panel #12: Focused session on Pit Options (2019)

TK Panel Past Recommendations

Watching/Monitoring

Respect

Traditional Laws



Future Generations

Natural Condition

Guardians / Stewardship

Reciprocity

Closure Planning

Nature is self-healing

Experiential learning

TK Panel Recommendations: Slimes

- 6.7 Removing the slime offsite remains the preferred option until Diavik can demonstrate through chemical and toxicological analysis that the slime is not harmful to the environment (i.e. plants, wildlife, fish, and humans).
 - ✓ Toxicological analysis done (2015-2016)
- 6.10 Once the slime is removed, line the lake bottom with granite / gravel and rocks and other natural materials that were there before.

TK Panel Recommendations: Watching

9.25 Given that the pits are going to be refilled with water, that Diavik is considering putting processed kimberlite and 'slimes' into the pits and underground shafts and concerns about tremors and seismic activity, the TK Panel requests a tour of the pits and underground shafts to see the 'receiving environment' with their own eyes.

✓ Underground tour done during TK Panel #11



TK Panel Recommendations: PK in Mine Areas, Pits

• 11.6 If PK were to go in any mine area, the Panel requests an opportunity to learn more about the depth of water for fish habitat to cover PK (TK and western science).



TK Panel Recommendations: PK in Mine Areas, Pits

- 11.11 The TK Panel recommends that they monitor the fish habitat within the pits, shoreline modifications (e.g., ramps) for wildlife as well as the stability of the dikes on a regular and ongoing basis.
- 11.12 The TK Panel recommends that they monitor freeze-up and break-up within the contained areas (i.e., within the dikes) to see if the formation and melting is any different with a view towards safety for people and wildlife.

TK Panel Recommendations: Wind

- 11.15 The TK Panel would like to see wind behaviour on water within the contained pits/dikes over a period of time (i.e. throughout all seasons).
- 11.16 The TK Panel would like to see wind behaviour on Lac de Gras in and around the dikes. [How is the water on the outside of the dikes and breach areas affected by wind?].

TK Panel Recommendations: Reconnecting Waters

• 9.24 Do not reconnect the North Inlet, open pits and PKC area with the lake/land; keep dams and dikes intact unless the water and sediments in those areas is proven to be clean and the same as Lac de Gras.



TK Panel Guidance (TK Panel #10)

- There is a concern if slimes were to be put into a pit that they may be released into the environment.
- As long as there are no chemical contamination or physical suspension issues (i.e. the slimes don't mix with the lake water), the TK Panel generally supports Diavik researching this alternative for disposal of the PK into the pits. The rationale for this guidance is that the TK Panel wants the WRSA-SCRP and disturbance footprint on the tundra to be as small as possible move slimes out of the PKC and use WRSA-SCRP rock to cover the PKC area. It was hoped that this might help prevent wildlife access.

Example: Ekati - PK in Underground

- Currently putting PK into Beartooth
- Plans to put PK into Panda/Koala
- 30 m freshwater cap on top of processed kimberlite (considered conservative and thus under review)



Charting New Ground

But there are no examples where:

- Pits have not been filled with mine waste, filled with water and then connected to another water body
- New challenge, new opportunity for TK Panel to lead the way



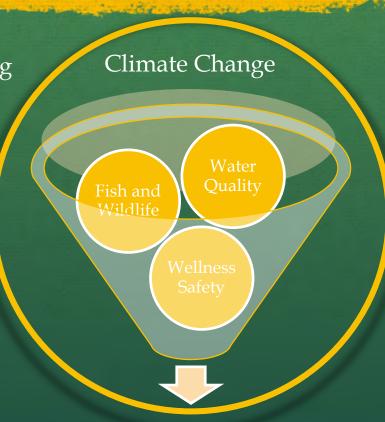
TK Panel Recommendations if Pits Refilled?

Watching / Monitoring

Respect

Traditional Laws

Nature is self-healing



Fears / Concerns
Watching / Monitoring

Future Generations

Natural Condition

Guardians / Stewardship

Reciprocity

Experiential learning

Questions for TK Panel #12?

- Question 1: What are your thoughts about the revised closure proposal for the pit? Do you have any questions about the changes to the proposal?
- Question 2: If the pits are filled, what are your concerns or fears about reconnecting the pit to Lac de Gras?
- Question 3: What other information do you need to feel comfortable with closure of the pit?



Questions for TK Panel #12?

- Question 4: If Diavik goes ahead with refilling the pit, what would you want to watch during closure to know that it is good? Regarding water? Regarding fish?
- Question 5: If Diavik goes ahead with refilling the pit, what would you want to watch in the filled pit lakes to advise if the pit lake should be connected with Lac de Gras?



Appendix F

DDMI Presentations on Closure and Reclamation Plan Overview, Water License Amendment and Underground Dewatering



Lac de Gras and Diavik Mine Site









- 1 A418
- 2-A154
- 3 A21
- 4 Processing Plant.
- 5 Processed kimberlite containment (PKC)
- 6 North Country Rock Pile (NCRP)
- 7 Main Camp (MAC)
- B Fuel tank farm
- 9 Airport
- 10 Wind farm
- 11 Truck shop
- 12 South Country Rock Pile (SCRP)
- 13 Waste management area
- 14- North Inlet
- 15 North Inlet water treatment plant

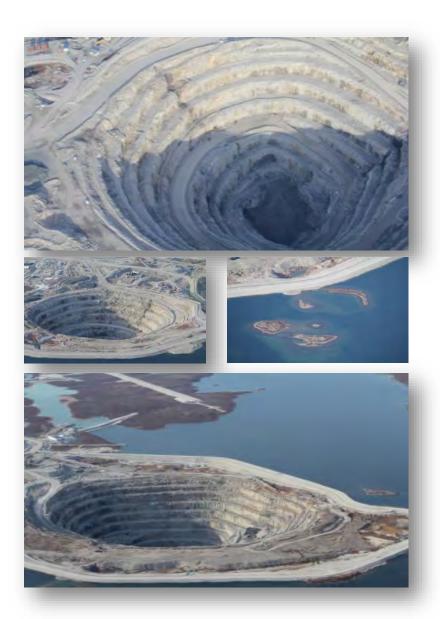
Closure and Reclamation Plan Overview



- 1. Open Pits & Underground
- 2. North Country Rock Pile
- 3. Infrastructure
- 4. North Inlet
- 5. Processed Kimberlite Containment

1. Open Pits & Underground





2. North Country Rock Pile







3. Infrastructure









4. North Inlet



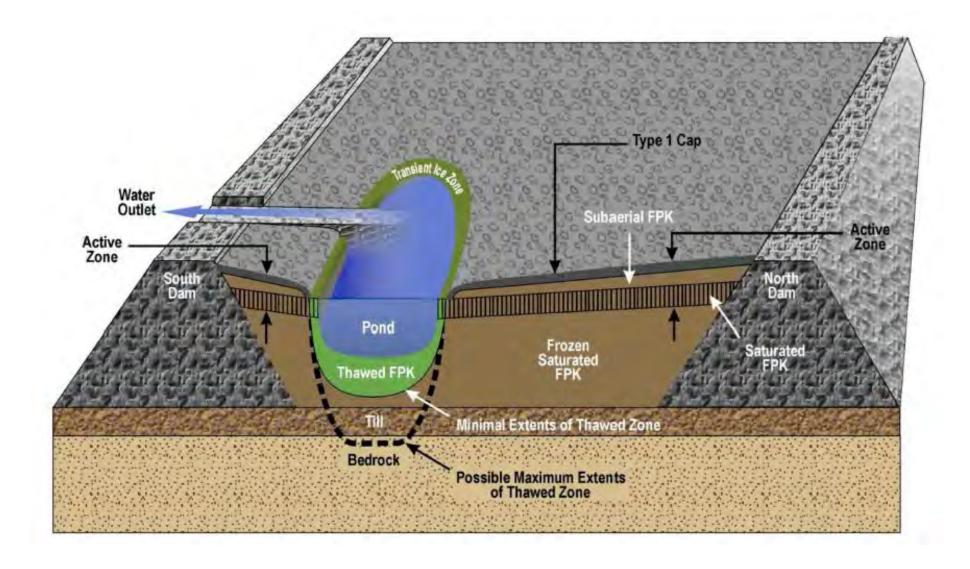


5. Processed Kimberlite Containment



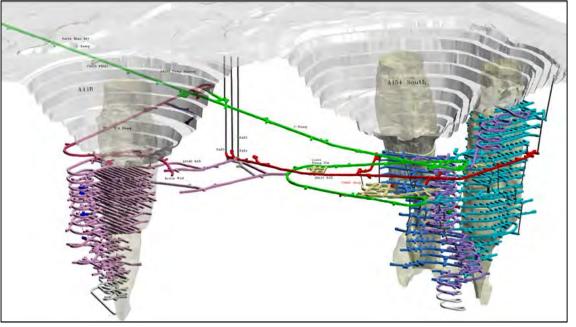


Approved PKC Closure Approach



There is an underground mine below the pit





© Rio Tinto 2017

Closure Plan is to fill mine area with water to create pit lakes







Passages will then be made to connect the pit lakes with

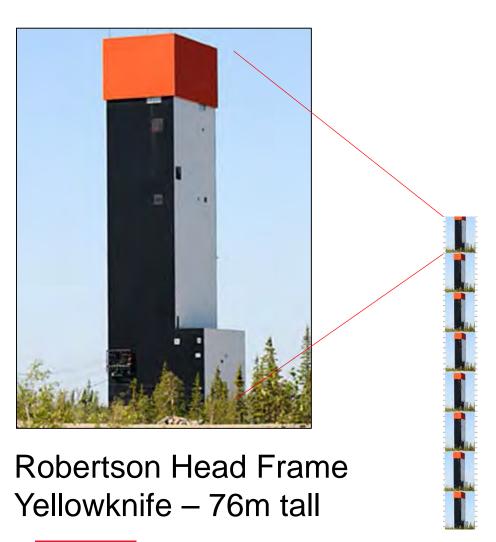
Lac de Gras

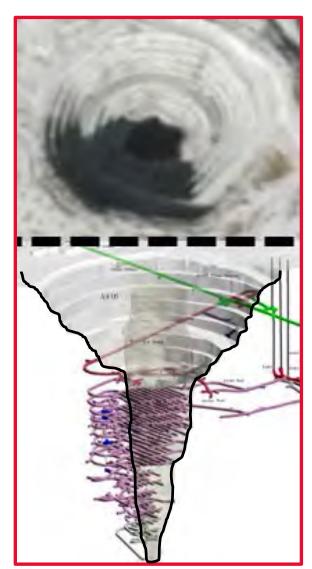


Question: What are the important things to think about if the water from the pit lakes joins water in Lac de Gras?



The mine area is very deep – 1/3 mile (630 meters)

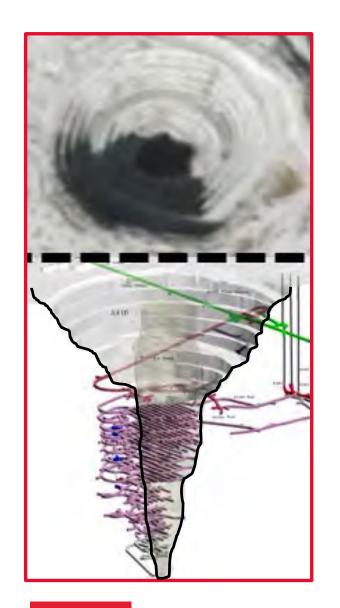




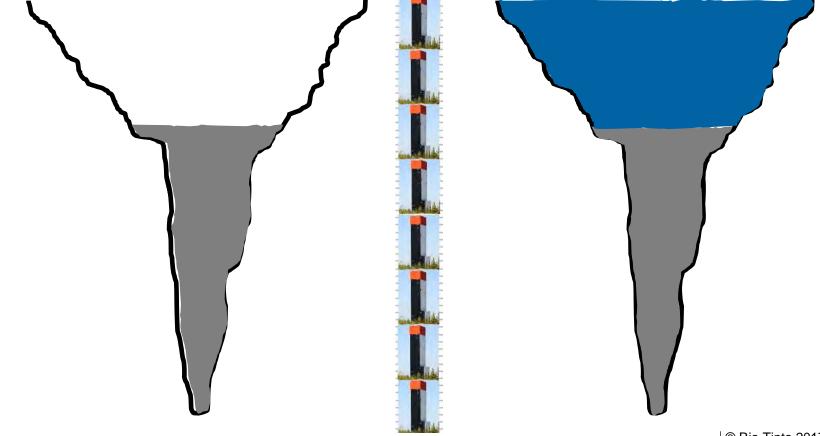


You could stack **8 Robertson Head Frames**on top of each other in the mine





Diavik would like to put processed kimberlite back in the bottom of the mine before filling it with water



Processed Kimberlite

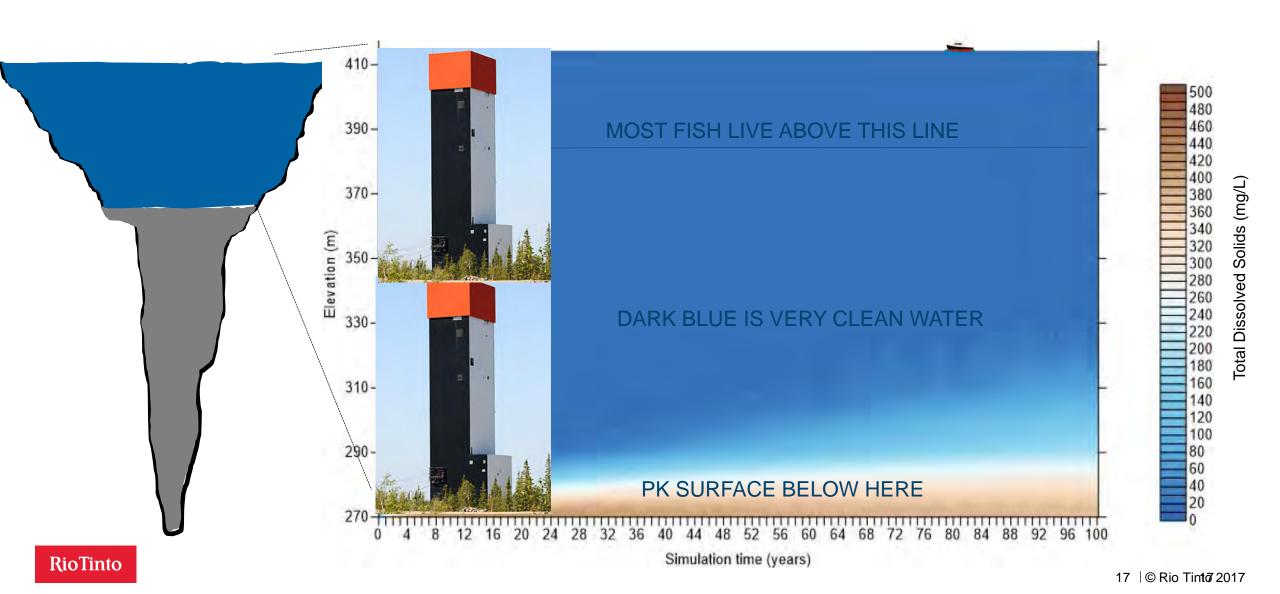
- Kimberlite is the rock that contains diamonds.
- The diamonds are removed by crushing and washing the rocks in water.
- The remaining material is referred to as 'processed kimberlite' (PK) and is a mixture of rock and water





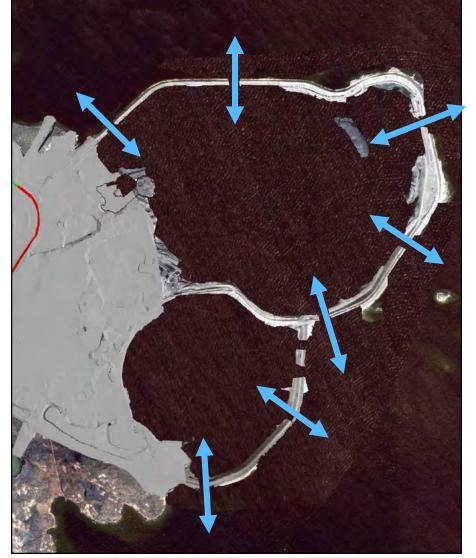


Water Quality and Fish In The Pit Lake



Question: What else should we look at before deciding to create passages between the pit lakes and the big lake?



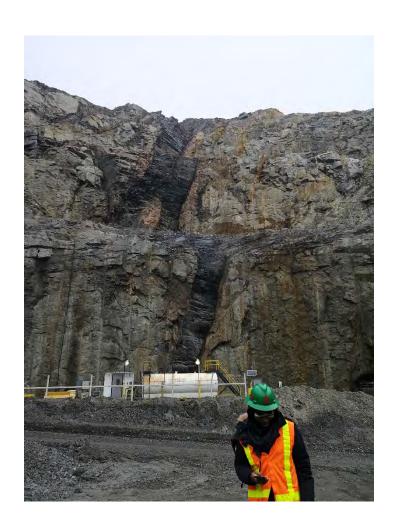




Date	2019 Community Engagement Updates
April 2	Lutselk'e Dene First Nation – meeting in Lutselk'e
April 23	Yellowknives Dene First Nation – meeting in Dettah
May 29	Tlicho Elders – meeting in Behchoko
June 3	Yellowknives Dene First Nation – regulatory officers visit to site
June 4	North Slave Metis Alliance – meeting in Yellowknife
June 6	Tlicho Government – visit to site
August 19	North Slave Metis Alliance - visit to site
September 3	MVEIRB EA: PK to MW - community hearing in Behchoko
September 4	MVEIRB EA: PK to MW - community hearing in Dettah
September 5	MVEIRB EA: PK to MW - technical hearing in Yellowknife, day 1
September 6	MVEIRB EA: PK to MW - technical hearing in Yellowknife, day 2















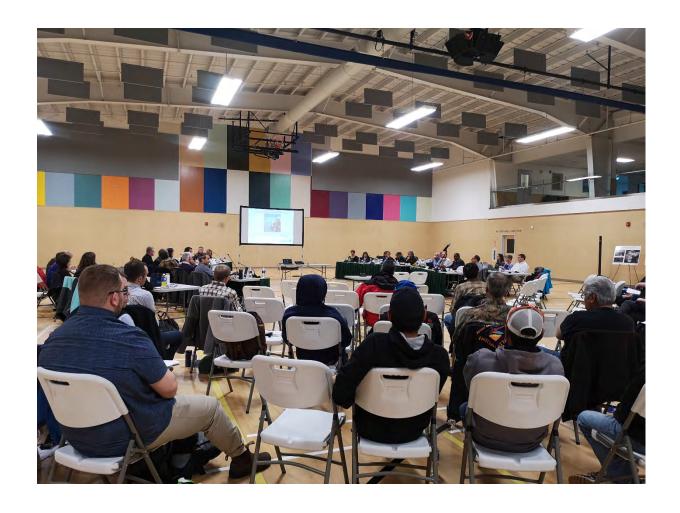






















Appendix G

Presentation of DDMI Responses to TK Panel Session #11 Recommendations



Supported

- The beach materials and rough kimberlite should stay in the PKC area (i.e., anything that can support a rock cover). (11.3) — Diavik will plan to leave the beach materials and rough kimberlite in the PKC area (i.e., anything that can support a rock cover).
- TK holders know that fish generally go where there is food (nutrients) and oxygen so they are unlikely to go to the depth where PK would be. (11.4)
- The TK Panel recommends a future TK Panel session dedicated to the health of the North Inlet upon closure and to decide if there is anything to address with the sediments. (11.7)
- The Panel requests that Diavik provide a list of items/equipment that will remain and be removed from underground before flooding or filling the mine with PK/water. (11.8) – Diavik is developing this list with the Inspector based on what was done previously at Ekati; it will be provided to the Panel when complete.



Supported Cont'd

- The TK Panel recommends that their members are present for at least some of the time when the slimes are moved from the PKC into the A418. (11.9) – Diavik has made development of TK-Based assessment of pit lake conditions with deposition of PK a priority. If slimes are removed from the PKC to the mine workings, Diavik will organize a TK Panel session that overlaps with this event.
- The TK Panel wants to monitor how water behaves when placed on PK.
 They would like to see the PK and water in the A418 as soon as it is safe
 to do so and when there is a good visual of the material, as well as at
 regular intervals afterwards. (11.10) As above. This can be completed
 annually during the TK Panel sessions.
- The TK Panel recommends that they monitor the fish habitat within the pits, shoreline modifications (e.g., ramps) for wildlife as well as the stability of the dikes on a regular and ongoing basis. (11.11) – As above.



Supported Cont'd

- The TK Panel recommends that they monitor freeze-up and break-up within the contained areas (i.e., within the dikes) to see if the formation and melting is any different—with a view towards safety for people and wildlife. (11.12) As above. Diavik will include recording of freeze-up and break-up within the pit lakes relative to Lac de Gras. Diavik will use air photography whenever possible so that results can be reviewed annually with TK Panel.
- The TK Panel would like to see the PK vegetation plots again. (11.13) –
 This can be done during a future TK Panel Session.



Modify

- The TK Panel recommends that we test slimes/PK in a fish tank to see if any water plants would grow on the PK. (11.14)
 - Diavik does not accept this recommendation as aquatic vegetation is not expected to occur at over 100m of water depth due to light limitations.
- The TK Panel would like to see wind behaviour on water within the contained pits/dikes over a period of time (i.e. throughout all seasons). (11.15)
 - Diavik suggests the collection of video during different periods of wind behaviour would be a better method for making these observations; videos could be presented at the TK Panel Sessions. If PK is placed in mine workings, Diavik will video wind behaviours on water within the pit lakes and review the video with the TK Panel.
- The TK Panel would like to see wind behaviour on Lac de Gras in and around the dikes. [How is the water on the outside of the dikes and breach areas affected by wind?] (11.16)
 - As above.



Response to Session 11 – Options for Processed Kimberlite

Pending

- If the PK goes to the mine area, the TK Panel recommends that all of the PKC slimes also be put into the pits. There is interest in moving as much of the slimes as possible from the PKC into the mine area and away from the surface where wildlife might gain access. (11.1)
 - If Diavik receives approval to deposit PK in mine workings then Diavik will proceed to evaluate the feasibility/practicality of also moving EFPK ("slimes") to the mine workings including anticipated benefits to closure of the PKC facility. The results/recommendations from the studies will be shared with the TK Panel once complete.
- If Diavik moves ahead with putting PKC slimes into the mine areas, the Panel requests to review any changes to the PKC closure plan. For example, if it is not possible to move all of the slimes in the PKC to the mine area and some of the slimes remain in the PKC, the TK Panel may recommend that the PKC is topped with large boulders to discourage wildlife and people from entering. (11.2)
 - As above.



Response to Session 11 – Options for Processed Kimberlite

Pending Cont'd

- The Panel would like additional scientific research to see what the effects of PK (ingestion) might be on fish specific to Lac de Gras. (11.5)
 - If Diavik receives approval to deposit processed kimberlite in mine workings then additional toxicological testing will be done on pore water collected from the deposited PK. There is no expectation that particulate PK will occur in the surface 40m where fish live.
- If PK were to go in any mine area, the Panel requests an opportunity to learn more about the depth of water for fish habitat to cover PK (TK and western science). (11.6)
 - If Diavik receives approval to deposit processed kimberlite in mine workings,
 Diavik has committed to a water cover greater than 50m. Pending approval,
 at the design stage of the project, Diavik will complete additional modelling
 and design based on the specific water cover depth that will be available for
 fish habitat above the PK and report this back to the Panel.



Appendix H

TK Panel Session #12 Recommendations Presented to DDMI

Traditional Knowledge Panel Guidance and Recommendations

Session #12: Pit Options September 12-16, 2019

Guidance

Guidance - Monitoring

- Feeling comfortable and having confidence throughout closure is difficult given many complex and interconnected factors.

 Monitoring programs that we design and carry out will help us to feel more comfortable and less uncertain.
- We want to build on the existing aquatic effects monitoring program and camp to expand TK testing and to build scientific testing methods and skills with young people.

Guidance - Monitoring

- Over and above the fact that community members are the rightful guardians of their lands, these modern times mean that people now need the employment opportunities that formal monitoring programs provide.
- Watching (monitoring) is just the beginning. Action plans need to be developed that identify responsibilities around addressing issues found through monitoring fish, water, wildlife, etc.

Guidance - Monitoring

• Non-invasive monitoring and testing are always preferred to methods that harass, prod or disrupt fish, wildlife, etc. (e.g. cameras versus tagging).

• Even after the TK Panel is satisfied that Diavik is released of responsibilities, the pits and mine site need to be monitored every year, indefinitely.

Guidance – Ways of Knowing

- While fish and wildlife are smart and can sense whether habitat is healthy or safe, sometimes they don't have any choice. This is why, for example, contaminated or deformed fish have been found in other parts of the world.
- People understand fish, fish habitat and how fish survive in lakes based on their fishing experience.

Guidance – Ways of Knowing

- The TK Panel supports and expects ongoing rigorous scientific testing of fish, water, geology (e.g. fissures), wildlife, etc.
- The impacts of climate change on permafrost and water levels, in particular, remain a big question in peoples' minds.
- It will take time for the pits to return to a natural state that is healthy for fish.

Guidance – Communications

- The TK Panel needs more tools (e.g. 3-d models, animations) that people can see and touch to help visualize and understand proposed plans. The TK Panel wants a central online location to store and access all TK materials (e.g. EMAB).
- Again, the TK Panel continues to want to meet more frequently (i.e. twice per year).
- People who attend the TK Panel for the first time must look at previous reports before participating.
- As per recommendation 8.6, the TK Panel would like to see both male and female youth participating in each TK Panel session.

Recommendations

Pit Closure and Kimberlite - Recommendations

• 12.1 The TK Panel would prefer to have the soft material that is produced from processing kimberlite (slimes) stored away from the surface so animals and humans cannot access it and accidently get caught in it. The Panel supports the option of putting the existing slimes that are in the PKC plus new slimes produced, in the bottom of the pit so that animals and people do not have access to it.

Pit Closure and Kimberlite - Recommendations

- 12.2 Remove the slimes that are currently in the PKC such that Diavik can start to cover the PKC to create a safe and hard surface at least three years earlier than the original closure plan.
- 12.3 The TK Panel needs to be on site to witness transfer of slimes and filling the pits with water (i.e. two TK Panel sessions).

Water Monitoring (Science) - Recommendations

• 12.4 Fill the pits from the bottom up with Lac de Gras water so that water is not running down the walls of the pits. Let the water settle for a minimum of two years.

Water Monitoring (Science) - Recommendations

• 12.5 Ensure scientific tests are done every season and throughout the year to understand the health of the water and to compare water in the pits to water in Lac de Gras. Scientific water testing should include, but not be limited to: temperature, turbidity, colour, clarity. The presence of micro-organisms should be measured as well as oxygen levels. Such tests should be done at various depths in the water column as far down as the PK. The results should be regularly shared with the TK Panel.

Water Monitoring (Science) - Recommendations

• 12.6 Diavik should collect baseline information on Lac de Gras from around the dikes so that impacts of breaching can be measured. The TK Panel should work with scientists to record ice thickness, wind behaviour and snow-drifting before and after dikes are breached.

Water Monitoring (TK) - Recommendations

• 12.7 The TK Panel would like Diavik to test water in the pits for at least two years (until the water is deemed good) and compare this to water in Lac de Gras. Water samples will be collected from multiple depths at various times throughout each year and tested according to the AEMP protocols. Taste tests will be done after scientific sampling tells us the water is drink-able where they will watch for smell, clarity (turbidity), temperature, colouration, scum on the water or tea, and water and tea for taste.

Water Monitoring (TK) - Recommendations

• 12.8 When scientists and the TK Panel agree that the pit water is safe (i.e. drinkable) and stable (i.e. consistent), then breaching of the dikes can occur to allow water to flow back and forth but prevent fish from entering the pits, at least initially.

Fish Monitoring (Science and TK) - Recommendations

- 12.9 Set nets for fish testing near the dikes in Lac de Gras to help get baseline information on current fish health and continue once the dikes are breached to compare.
- 12.10 Whether or not the dikes allow fish passage, do not build up fish habitat within the shallow pit areas where PK is placed as fish will return naturally if they sense it is safe and the nutrients and oxygen that they need are there. Focus DFO requirement for fish habitat enhancement in pits where there is not PK. The TK Panel needs to be there to watch and provide guidance on how to enhance fish habitat.

Fish Monitoring (TK) in Pits - Recommendations

- 12.11 Put fish in pit lakes to be monitored, tested and sampled before the dike is completely breached once water is deemed "safe" (i.e. at least 2-6 years of monitoring). If the fish are the same as fish in Lac de Gras according to TK testing (e.g. liver, heart, gills, bladders, etc.), carry out a second stage breach for fish passage.
- 12.12 Monitor fish from pit lakes according the AEMP protocols, but only taste test them if there is an acceptable comfort level and scientific results confirm that the fish are safe for eating.

Monitoring (Other) - Recommendations

- 12.13 Install motion activated cameras around the dikes to monitor wildlife activity to see if birds and animals are trying to access pit water. Test animals if possible through non-invasive methods. Any dead animals should be tested for contaminants. Report all findings to communities and the TK Panel.
- 12.14 Monitor plant life, sediments and bugs in the water within the pits in the spring (after break-up), summer, and fall (before freeze-up) through our own eyes. Combine this with scientific test results. Further discussion is needed to detail this monitoring approach.

Monitoring (Other) - Recommendations

- 12.15 Develop details of monitoring programs (including training and employment) and action plans for community members. Expand the aquatic effect monitoring program and camp to include the TK Panel and a base for TK monitoring as one step in this plan.
- 12.16 Develop an online location where all TK Panel materials will be stored and made accessible. Request that EMAB host these on their website. Communications presentations should be developed and uploaded so that they can be used by TK Panel members within their communities.

Traditional Knowledge Panel Session # 12: Guiding Themes and Recommendations

September 12-16, 2019 Diavik Mine

Part A: Guiding Themes

Monitoring

Feeling comfortable and having confidence throughout closure is difficult given many complex and interconnected factors. Monitoring programs that we design and carry out will help us to feel more comfortable and less uncertain.

We want to build on the existing aquatic effects monitoring program (AEMP) and camp to expand TK testing and to build scientific testing methods and skills with young people.

Over and above the fact that community members are the rightful guardians of their lands, these modern times mean that people now need the employment opportunities that formal monitoring programs provide.

Watching (monitoring) is just the beginning. Action plans need to be developed that identify responsibilities around addressing issues found through monitoring fish, water, wildlife, etc.

Non-invasive monitoring and testing are always preferred to methods that harass, prod or disrupt fish, wildlife, etc. (e.g., cameras versus tagging).

Even after the TK Panel is satisfied that Diavik is released of responsibilities, the pits and mine site need to be monitored every year, indefinitely.

Ways of Knowing

While fish and wildlife are smart and can sense whether habitat is healthy or safe, sometimes they don't have any choice. This is why, for example, contaminated or deformed fish have been found in other parts of the world.

People understand fish, fish habitat and how fish survive in lakes based on their fishing experience.

The TK Panel supports and expects ongoing rigorous scientific testing of fish, water, geology (e.g., fissures), wildlife, etc.

The impacts of climate change on permafrost and water levels, in particular, remain a big question in peoples' minds.

It will take time for the pits to return to a natural state that is healthy for fish.

Communications

The TK Panel needs more tools (e.g., 3-d models, animations) that people can see and touch to help visualize and understand proposed plans.

Again, the TK Panel continues to want to meet more frequently (i.e., twice per year).

People who attend the TK Panel for the first time must look at previous reports before participating.

As per Recommendation 8.6, the TK Panel would like to see both male and female youth participating in each TK Panel session.

Part B: Recommendations

Pit Closure and Processed Kimberlite

- 12.1 The TK Panel would prefer to have the soft material that is produced from processing kimberlite (slimes) stored away from the surface so animals and humans cannot access it and accidently get caught in it. The Panel supports the option of putting the existing slimes that are in the PKC plus new slimes produced, in the bottom of the pit so that animals and people do not have access to it.
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- 12.3 The TK Panel needs to be on site to witness transfer of slimes and filling the pits with water (i.e., two TK Panel sessions).

Monitoring Water - Science

- 12.4 Fill the pits from the bottom up with Lac de Gras water so that water is not running down the walls of the pits. Let the water settle for a minimum of two years.
- 12.5 Ensure scientific tests are done every season and throughout the year to understand the health of the water and to compare water in the pits to water in Lac de Gras. Scientific water testing should include, but not limited to: temperature, turbidity, colour, clarity. The presence of micro-organisms should be measured as well as oxygen levels. Such tests should be done at various depths in the water column as far down as the PK. The results should be regularly shared with the TK Panel.
- 12.6 Diavik should collect baseline information on Lac de Gras from around the dikes so that impacts of breaching can be measured. The TK Panel should work with scientists to record ice thickness, wind behaviour and snow-drifting before and after dikes are breached.

Monitoring Water - TK

- 12.7 The TK Panel would like Diavik to test water in the pits for at least two years (until the water is deemed good) and compare this to water in Lac de Gras. Water samples will be collected from multiple depths at various times throughout each year and tested according to the AEMP protocols. Taste tests will be done after scientific sampling tells us the water is drinkable where they will watch for smell, clarity (turbidity), temperature, colouration, scum on the water or tea, and water and tea for taste.
- 12.8 When scientists and the TK Panel agree that the pit water is safe (i.e., drinkable) and stable (i.e., consistent), then breaching of the dikes can occur to allow water to flow back and forth but prevent fish from entering the pits, at least initially.

Monitoring Fish

- 12.9 Set nets for fish testing near the dikes in Lac de Gras to help get baseline information on current fish health and continue once the dikes are breached to compare.
- 12.10 Whether or not the dikes allow fish passage, do not build up fish habitat within the shallow pit areas where PK is placed as fish will return naturally if they sense it is safe and the nutrients and oxygen that they need are there. Focus DFO requirement for fish habitat enhancement in pits where there is not PK. The TK Panel needs to be there to watch and provide guidance on how to enhance fish habitat.
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- 12.12 Monitor fish from pit lakes according the AEMP protocols, but only taste test them if there is an acceptable comfort level and scientific results confirm that the fish are safe for eating.

Monitoring - Other

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- 12.15 Develop details of monitoring programs (including training and employment) and action plans for community members. Expand the aquatic effects monitoring program and camp to include the TK Panel and a base for TK monitoring as one step in this plan.
- 12.16 Develop an online location where all TK Panel materials will be stores and made accessible. Request that EMAB host these on their website. Communications presentations should be developed and uploaded so that they can be used by TK Panel members within their communities.

Appendix I

Next Steps

Next Steps

Session	Original Plan (2013)	Completed & Revised Plan
6	PKC	PKC
7	Re-vegetation	Re-vegetation
8	Review of Closure Landscape	Fish Habitat Design & Water Quality
9	Post-closure monitoring: Wildlife & Water	Post-closure Wildlife Monitoring
10	Fish Habitat Design Reviews	SCRP & TK Monitoring Plan
11	PK Management (A418)	PK Management (A418)
12	Pit Options	Pit Options

Need to plan for future sessions – 1/year is realistic



Future Topics/Sessions

North Inlet

Monitoring at Closure

Updates on PKC closure options

Closure Details: building demolition, metal disposal, waste disposal, contaminants, laydown areas, airports, roads, etc.

Closure Inspection Criteria

2021 Aquatic Effects Monitoring Program (AEMP) TK Camp



Appendix J

TK Panel Session #12 Evaluation Summary

TK Panel Session #12 Evaluation Form

Thank you for participating in the twelfth TK Panel session held at the Diavik Mine from September 12-16, 2019. We hope you enjoyed your time at the session. We appreciate feedback on your experience. Your responses will help us maintain and improve future sessions.

1.	How would you rate the session for working and communicating together?
0	- , g
_	Good
_	Neither good nor poor
	Poor Vory Poor
	Very Poor
	How would you rate the session for mutual respect among participants?
	Very good
_	Good
	Neither good nor poor
	Poor
0	Very Poor
2	
	How would you rate the opportunities for you to share your knowledge and experiences ?
	Too many opportunities
	Enough opportunities Too few opportunities
	100 few opportunities
4.	How would you rate the <u>recording and documenting of TK during the session</u> ?
	Very good
	Good
_	Neither good nor poor
	Poor
0	Very Poor
	How would you rate the <u>facilitation of the session</u> ?
	Very good
	Good
_	Neither good nor poor
	Poor
	Very Poor
6.	How would you rate the <u>outcomes and findings of the session</u> ?
0.	
	Good
	Neither good nor poor
0	Poor
	1 001

7. C	Enough time
	How would you rate the <u>venue and food</u> for the session? Very good Good Neither good nor poor Poor Very Poor
	How would you rate the <u>logistics</u> for the session (e.g., hotel, travel, and honoraria)? Very good Good Neither good nor poor Poor Very Poor
	O. Overall, how would you rate the session? Very good Good Neither good nor poor Poor Very Poor
11	L. What were the strengths of the session? What did you enjoy about the session?
12	2. How could the session be improved?

2018 Diavik TK Panel, Session 11: Evaluation Form Summary

		Neither		Total			
Question	Very Good	Good	Good nor	Poor	Very Poor	Responses	Comments
How would you rate the session for working and communicating	12	2					
together?	12	2					
How would you rate the session for mutual respect among	19	4					
participants?		4					
How would you rate the recording and documenting of TK during the	11	3					
session?	11	3					
How would you rate the facilitation of the session?	10	4					
How would you rate the outcomes and findings of the session?	9	5					
How would you rate the venue and food for the session?	10	2	1				
How would you rate the logistics for the session (e.g. hotel, travel, honoraria)	8	5	1				
Overall, how would you rate the session?	9	4					

Question	Too long/ many	Enough	Too short/few	Total Responses	Comments
How would you rate the opportunities for you to share your knowledge and experiences?	3	11			
How would you rate the amount of time to discuss the topics during the session?	2	10	1		

What were the strengths of the session? What did you enjoy most about the session?

Everyone having enough time to speak. I enjoyed the camaraderie of the group. Making friends. I enjoyed the discussions: it was nice to hear different points of view from different areas. All groups agreeing with one another. Coffee breaks, late starts, early finish. Everyone sharing their knowlege, working together to reach our goals and objectives. Building our bonds with each other to be more comfortable and confidence to have our say. Sight seeing: more of that. More elders and youth supports. The only thing is when trying answer a question that is purposed, a new question develops. Learning, listening, being part [sic]. Keeping everyone on track and on topic. Information sharing, diversity of youth and elders. Have a look and see the new pit and the work from last visit. I love everything. I enjoy my stay and to meet all other peoples that I never seen.

How could the session be improved?

Traditional foods. Have one session on mine site and one sesson in Yellowknife. New members should at least be updates on issues being discussed. Work together. Re-cap to new members. By going on-land to do fish tasting, water samples - boiling to make tea, same snow in winter then boiling it, taste it. The days are good among the weekend and organized as well to get everyone here. It is good as it is for now unless someone else has other suggestions. Can't be! More space to work in. Give new panelists background on topic to avoid working backwards. Offer traditional food (e.g. caribou stew and bannock). Come back again! Larger room to have meetings, tables as an asset. I can't say much, no complaints. I enjoyed my stay.