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Charlie Catholique, Chair
Environmental Monitoring Advisory Board
PO Box 2577
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22 October 2023

Dear Mr. Catholique:

Subject: DDMI 2022 Environmental Agreement Annual Report

Please find enclosed Diavik Diamond Mines (2012) Inc.'s (DDMI) finalized 2022 Environmental Agreement Annual Report (EAAR) for the Diavik Mine as per Article XII, Section 12.1 of the Environmental Agreement. This submission addresses the August 2023 comments and recommendations received from the Environmental Monitoring Advisory Board (EMAB) and the Government of Northwest Territories Environment and Climate Change (GNWT-ECC) following a review of DDMI's draft 2022 EAAR submitted to EMAB and GNWT-ECC in July 2022. A table of DDMI responses to these comments and recommendations is appended to this letter.

Please do not hesitate to contact the undersigned or Kyla Gray (kyla.gray@riotinto.com; 867-445-4922) if you have any questions related to this submission.

Yours sincerely,

A handwritten signature in black ink, appearing to read 'M. Nelson'.

Mark Nelson
Superintendent, Environment & Closure

Cc: John McCullum, EMAB
Allison McCabe, EMAB
Nancy Njerere, GNWT-ECC
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Attachment 1: Table of DDMI Responses to 2022 Satisfactory Determination Comments

Attachment 2: Table of DDMI Responses to EMAB and GNWT-ECC Comments and Recommendations on Draft 2022 EAAR

Attachment 3: 2022 EAAR

Attachment 1: Table of DDMI Responses to 2022 Satisfactory Determination Comments

DDMI Responses to Satisfactory Determination of 2021 EAAR Comments and Recommendations

	Topic/Reference	Comment	Recommendations	DDMI Response
ECCC Comments				
1	<p>Incinerator Stack Testing</p> <ul style="list-style-type: none">DDMI 2021 Environmental Agreement Annual Report – 5. New Technologies and Energy EfficiencyDDMI 2021 Environmental Agreement Annual Report - Appendix II Summary of Adaptive Management and Mitigation MeasuresDiavik Diamond Mine Incinerator Management Plan, Chapter Two of Waste Management Plan Version 5 - Section 2.4 Incineration Operation	<p>Section 5 of the annual report states that the Proponent installed a new incinerator in 2020 that is larger and more efficient, with the older incinerator retained as a backup as needed. Appendix II of the annual report, <i>Table I-A Adaptive Management & Mitigation</i> mentions that revisions to test incinerator ash and stack tests procedures were made in the Waste Management Plan. However, Version 5 of the Waste Management Plan released in September 2022 has no mention of incinerator stack testing for dioxin and furan concentrations.</p>	<p>Please note that ECCC provided a similar comment during review of the Waste Management Plan Version 5. The Proponent did not provide the requested information and as such, ECCC is reiterating the recommendation as follows:</p> <p>ECCC requests that the Proponent provide the dates of the last incinerator stack test series, results of the stack tests indicating concentrations of furans and dioxins, and the most recent records of primary and secondary chamber temperatures and incinerator capacity. If the last stack test was performed prior to 2020, please indicate a time frame for the next incinerator stack test.</p>	<p>DDMI included this text in the table in 2017 when compiling the 2016 EAAR and notes this is an error and “stack” should read “scrubber water “as DDMI began scrubber and ash testing during that time. The text has been updated. DDMI has not performed stack testing of its new incinerator that was installed in 2020. Emissions are managed through proper operational controls and strict waste management segregation practices and Diavik's new incinerator unit is designed to operate to meet CCME standards and is without a scrubber water system. Further, the secondary chamber of the incinerator operates at a temperature sufficient to eliminate dioxins and furans with a residence time of 2 seconds to burn off. No auxiliary fuel is used in the incinerator process at Diavik further reducing emission potential.</p> <p>In addition to proper incinerator operation, DDMI implements and executes a strict waste management program including segregation, and recycling to successfully incinerate waste thus producing emissions below the CCME Canada Wide Standards for dioxins and furans and mercury. Items such as heavy plastics, metals, batteries, light bulbs, etc. do not enter the waste stream of the incinerators as per existing operations under previously approved waste management plans.</p> <p>Further, the EAAR are monitoring results from approved environmental monitoring programs at Diavik, and incinerator stack testing is not part of an approved plan. As mentioned, DDMI relies on the implementation of strict waste management plan procedures and proper incineration of waste to produce emissions below CCME Canada Wide Standards.</p>
GNWT-ECC Comments				

DDMI Responses to Satisfactory Determination of 2021 EAAR Comments and Recommendations

	Topic/Reference	Comment	Recommendations	DDMI Response
2	Wildlife Mitigations <ul style="list-style-type: none">DDMI 2021 Environmental Agreement Annual Report - Appendix II Summary of Adaptive Management and Mitigation Measures	ECCC is reminding the Proponent that Environment staff should remain vigilant for the presence of Bank Swallows and Barn Swallows during all wildlife monitoring conducted during the general bird nesting period (early May to mid-August). Both the Bank Swallow and Barn Swallow have been listed as “Threatened” under the federal Species at Risk Act (SARA) since November 2017. Both species have very specific habitat preferences. ECCC acknowledges and appreciates the inclusion and incorporation of Bank and Barn Swallow monitoring to the most recent version of the Wildlife Monitoring and Management Plan (WMMP), however ECCC notes Appendix II does not contain any monitoring related to Bank and Barn Swallow to reflect the information in the updated WMMP.	ECCC recommends that the Wildlife aspect of Table I-A Adaptive Management & Mitigation from Appendix II be updated to include adaptive management responses and mitigation measures regarding Bank and Barn Swallow in subsequent Environmental Assessment Annual Reports. ECCC looks forward to reviewing subsequent Environmental Assessment Annual Reports (EAARs) that include information related to these additional monitoring plans (i.e. Bank Swallow and Barn Swallow monitoring).	Text added to page 101 of the 2022 EAAR. Text added to Table I-A Adaptive Management & Mitigation from Appendix II (under the Adaptive Management & Mitigation heading).
3	Caribou and caribou habitat	ENR notes that DDMI is working with ENR to develop better Bathurst Herd caribou monitoring and assessment methods for potential disturbance.	ENR Wildlife and Fish Division recommends that DDMI continues to work with ENR to develop new disturbance monitoring approaches for caribou and caribou habitat.	DDMI looks forward to continuing to work with GNWT ECC to develop new disturbance monitoring approaches for caribou and caribou habitat.

Attachment 2: Table of DDMI Responses to EMAB and GNWT-ECC Comments and
Recommendations on Draft 2022 EAAR

Table of Responses to EMAB and GNWT-ECC Recommendations on Draft 2022 EAAR

	Reference	Comment	Recommendations	DDMI Response/Location in 2022 EAAR
2022 EMAB Comments				
1	Summary of 2022 Environmental Activities	Page v, section of “Wildlife”, paragraph 1, “Caribou aerial surveys were not required or completed in 2021”. Could Diavik elaborate more on why aerial surveys were not required or completed in 2021?	Elaborate on why aerial surveys were not required or completed in 2021	The executive summary is intended to broadly summarize the contents of the 2022 EAAR. Additional details are available to the reader within the report. DDMI has provided additional information on aerial surveys in the Caribou section of the 2022 EAAR (pg.81).
2	Summary of 2022 Environmental Activities	Page vi, section of “Water and Fish”, paragraph 1, “however a Lake Trout parasite study was started following up on observations from the 2021”. EMAB appreciates Diavik’s efforts in this study. Could Diavik elaborate more on the current status of this study (i.e. if there are any observations, findings, etc.).	Diavik should provide an update on the current status of the Lake Trout parasite study with observations, findings, etc.	The Lake Trout health and parasite sampling effort was a commitment DDMI made in the 2021 AEMP TK Camp verification session and the effort started in 2022 with the summer sampling and was completed in 2023 with the winter sampling. Therefore, the results of this effort will be included in the 2023 EAAR. DDMI has included additional information on this effort in the AEMP TK Camp section of the 2022 EAAR (pg.56).
3	Summary of 2022 Environmental Activities	Page vi, section of “Water and Fish”, paragraph 2, “Elevated concentrations of nutrients extending to various distances from the Mine (depending on variable and season)”. Can Diavik explain what is meant by “variable” or which variable?	Diavik should clarify what is meant by "variable" and which variables are indicated by this sentence.	The variables indicated by this sentence are phosphorus and total nitrogen. DDMI will make this distinction in the 2023 executive summary as the 2022 summary has already been translated.
4	Environmental Programs and Plans	Page 10, section of “Monitoring Programs”, Table 3. Explain why Reporting Frequency/ Comments for Aerial Caribou Surveys and Wolverine Track Survey were discontinued.	Explain why aerial caribou surveys and Wolverine Track Survey have been discontinued	See also DDMI response to EMAB Comment 1. Table 3 has been updated with footnotes directing readers to the appropriate section for further information on the rationale for discontinuing monitoring programs. Further information has been provided in each of those relevant sections describing the rationale for discontinuing those programs.
5	Environmental Programs and Plans	Page 12, section of “Aquatic Effects (Lake Water Quality & Fish Health)”. Provide details about the frequency of monitoring at different sampling locations.	Diavik should include details on the frequency of monitoring at different sampling location in the approved AEMP	DDMI agrees that this is a very important detail to include. New information has been included in the “Aquatic Effects (Lake Water Quality & Fish Health)” Section of the 2022 EAAR (pg.12).

Table of Responses to EMAB and GNWT-ECC Recommendations on Draft 2022 EAAR

	Reference	Comment	Recommendations	DDMI Response/Location in 2022 EAAR
6	Environmental Programs and Plans	Page 14, section of “Air Quality (Dust & Emissions)”. While the section mentions the addition of two new sample stations in October 2017 (Dust 11 and Dust 12), it would be helpful to provide a brief explanation of the rationale behind their inclusion so that that Parties can understand the significance of the changes and the reasons for modifying the monitoring approach.	Diavik should describe the rationale for adding 2 dust stations (dust 11 and 12) to the dust monitoring program and their significance to the program.	Dust 11 and Dust 12 were included in 2017 to address the Diavik Diamond Mine's expanded footprint and better encompass a complete overview of the East Island's area. Dust 11 and Dust 12 are 0.805 and 2.58 km respectively from mining operations. Dust 12 represents the East Island's westernmost point, while Dust 11 represents the island's southwesternmost point. Combined, these two dust gauges enhance the dust gauge monitoring program by enabling the capture of dust surrounding the island. Additionally, with the active production of the A21 pit, combined with the sizeable amount of annual winds from the southeast, the inclusion of these dust gauges was determined to be reasonable and represented a rational and proactive step by DDMI. A plain language rationale has been included in the 2022 EAAR on page 14.
7	Environmental Programs and Plans	Page 16, section of “Surveillance Network Program (Water Quality at the Mine Site) “. Since the Processed Kimberlite Containment Facility (PKCF) does not completely freeze in winter, it might be beneficial to briefly discuss how Diavik manages water movement within the dam during colder months to prevent potential environmental issues.	EMAB recommends Diavik describe how water is managed inside the PKCF dams during colder months to prevent potential environmental issues.	DDMI has revised and improved the wording in this section in the 2022 EAAR (pg. 16).
8	Results: Summary of Rolling Effects & Monitoring Program Changes, Section of “Water and Fish”.	Provide more details on the efforts made to address the parasite prevalence in fish. Explain any additional measures taken or planned to manage the issue.		DDMI included additional information on the parasite sampling that was done in 2022/2023 as a follow up from the results of the 2021 AEMP TK Camp. The information from the report will be presented in the 2023 EAAR.

Table of Responses to EMAB and GNWT-ECC Recommendations on Draft 2022 EAAR

	Reference	Comment	Recommendations	DDMI Response/Location in 2022 EAAR
9	Total Suspended Particulate (TSP), Page 66, paragraph 1,	Page 66, paragraph 1, discusses the discontinuation of TSP monitoring and states that “In 2019, DDMI determined that continued TSP monitoring was not a valuable component of the air quality monitoring initiatives at the Diavik mine”. EMAB is still in disagreement with Diavik’s stance on TSP monitoring, and believes TSP monitoring should be mandatory.	EMAB believes TSP should be mandatory	Noted. DDMI has requested EMAB to work collaboratively with DDMI on updating its EAQMMP to address EMAB’s concerns and expects that TSP monitoring will be at the forefront of these discussions and collaborative work.
10	New Technologies and Energy Efficiency, Page 115-116.	Page 115-116. To enhance the section further, consider including additional details/ data to support the success of these initiatives. For example, you could provide more information on the percentage reduction in overall emissions due to the combined effect of energy-saving projects or compare the environmental impact before and after implementing the new incinerator and waste management system. Additionally, it might be beneficial to include any plans or future targets for continued improvement in energy efficiency and sustainability. This could involve discussing potential expansion of renewable energy sources or exploring other emerging technologies to reduce the mine's environmental footprint.	EMAB recommends Diavik expand on how the addition of new technologies and energy efficiency initiatives have impacted emissions or environmental impact. Provide examples of upcoming efficiency initiatives.	The impact on emissions (offset of CO2e) is presented on page 116 of the 2022 EAAR. An upcoming efficiency initiative is the solar farm project. However, this was announced in 2023 therefore, DDMI will include information on this project in next years EAAR. DDMI included the solar panel farm in the list of planned 2023 operational activities.
11	Wildlife	Page 79, section of “Observation”. “Diavik will no longer monitor caribou behaviour beyond 2022. Future behavioural analyses will instead be informed by collared caribou data. For more information, refer to the 2022 Wildlife Management and Monitoring Report”. The 2022 WMMP states that Diavik plans to discontinue group scans for caribou behavior monitoring in 2023. EMAB disagrees with Diavik’s proposal to end the group scans. EMAB recommends that any alternative methods, such as geofence collar analysis, should take place in addition to the existing behavior monitoring requirement. It is EMAB’s understanding that ECC has not approved Diavik’s proposed	EMAB recommends that Diavik continue doing group behaviour scans alongside alternative methods of caribou ZOI analysis. Diavik should note that its decision to stop doing caribou behaviour scans has not been approved by ECC	DDMI has updated the wording on page 79 to clarify that Diavik will no longer conduct caribou behavioural group scans, but will continue behaviour analysis using collared caribou data. DDMI also included note that the 2022 WMMP is pending approval by ECC. Further rationale for the replacement of caribou group behaviour scans with fine-scale collared caribou data has been provided on page 85 of the 2022 EAAR in the section of “Caribou Group Scans Pooled Analysis”.

Table of Responses to EMAB and GNWT-ECC Recommendations on Draft 2022 EAAR

	Reference	Comment	Recommendations	DDMI Response/Location in 2022 EAAR
		discontinuation of caribou behaviour monitoring – this should be noted in the report.		
12	2021 TK Fish Camp	<p>Diavik conducted a Traditional Knowledge Fish Camp in 2021. However, there were some outstanding issues that were not finalized with EMAB in 2021 including: 2021 TK Fish Camp Report and Video, Proposed Workshop on Fish Camp Results, and TK Panel Reports Approval Process.</p> <p>EMAB strongly recommends that Diavik place special emphasis on these outstanding issues regarding the Traditional Knowledge Fish Camp in the 2022 EAAR. Transparently addressing these matters and demonstrating proactive measures to resolve them will communicate Diavik's dedication to honoring Traditional Knowledge and fostering positive relationships with the involved communities.</p>	Diavik should transparently address EMAB's concerns regarding the 2021 TK Fish Camp Report and Video, the TK Panel Report approval process, and the Proposed Workshop on Fish Camp Results in the 2022 EAAR. Diavik should also identify proactive measures taken or being taken to resolve these concerns.	<p>While DDMI appreciates EMAB comments, DDMI understands that these details are beyond the scope of the EAAR which is tool for reporting results of approved monitoring programs at Diavik. Further, DDMI has provided its responses to EMAB directly on these matters.</p> <p>On pg. 119 there is list of the various topics/concerns that DDMI received letters on from EMAB in 2022. DDMI has added “TK Panel” to this list. The proposed workshop letter was received by DDMI in 2023, therefore, it will be mentioned in the 2023 EAAR.</p>
13	TK Panel Reports Approval Process	<p>EMAB emphasizes and reiterates that Diavik has provided EMAB with three TK Panel reports (13, 14 and 15) in the last few months, which have been finalized in a different way than was done in the past. Previously the process was:</p> <ol style="list-style-type: none"> 1. Panel reports would be prepared as a draft by the facilitators and sent to the TK Panel members for comment. 2. The facilitators would then revise the report and hold a verification meeting with the Panel. 3. The Panel would approve the final version of the report. The verification meetings usually took place at the start of the next TK Panel meeting. 	Diavik should thoroughly elaborate on its discussions with EMAB regarding the TK Panel reports approval process in the 2022 EAAR. By providing transparent insights into the status and efforts to resolve this matter, Diavik can showcase its commitment to engaging with stakeholders and ensuring the proper recognition and utilization of Traditional Knowledge in the decision-making process.	DDMI understands that the discussions regarding the TK Panel management and governance are outside the scope of the EAAR which is a tool for reporting results of approved programs. TK panel processes are discussed in the reports.
14	Other TK Issues		EMAB recommends Diavik elaborate on its discussions with EMAB regarding the TK Panel Governance.	DDMI understands that the ongoing discussions regarding the governance of the TK Panel are outside the scope of the EAAR. Further, as stated in its May 4, 2022, letter to EMAB, DDMI would like to remind EMAB that it does not represent the Indigenous Parties to the Environmental Agreement, and they

Table of Responses to EMAB and GNWT-ECC Recommendations on Draft 2022 EAAR

	Reference	Comment	Recommendations	DDMI Response/Location in 2022 EAAR
				do not have any governance authority over DDMI’s traditional knowledge panel.

GNWT Comments on Draft 2022 EAAR				
	Reference	Comment	Recommendations	DDMI Response/Location in 2021 EAAR
1	Vegetation, Dust and Air Quality	Regarding the schedule for the next Lichen Monitoring activities, on page v, it says next ones will be done in 2024 yet in table 3 on page 1, it says they will be done in 2026	Confirm schedule for the program and provide a consistent schedule in the report.	DDMI updated the text on page v to note that the Lichen Monitoring program is completed every 3 or 5 years, with the next program scheduled for 2024.
2	3: Results -Water and Fish, Page 20	" Of the sixteen water quality parameters, eleven also triggered Action Level 2. " Only 10 water quality parameters triggered Action level 2 according to table 4 contents	Confirm and address inconsistencies between table 4 and its pre text.	DDMI updated the pretext to clarify that ten water quality parameters triggered Action Level 2.
3	3: Results -Water and Fish, Page 25	"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, .." That’s inconsistent with table 7 data	Confirm and address inconsistency between table 7 and its pre text.	DDMI updated the pretext to clarify that twenty-three water quality parameters triggered Action Level 1.
4	3: Results -Water and Fish, Page 31	"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, .." That’s inconsistent with table 8 data	Confirm and address inconsistency between table 8 and its pre text.	DDMI updated the pretext to clarify that eighteen water quality parameters triggered Action Level 1.

Table of Responses to EMAB and GNWT-ECC Recommendations on Draft 2022 EAAR

5	Grizzly Bear Mortality Rate Page 94	The opening statement reads; "The calculated mine mortality rate for grizzlies over the 23-year monitoring period (since 2000) is 0.13, which is near the lowest limit of the predicted range. ". However, th0e data in the table presents that 5 bear mortalities between 2001 and 2022. This suggests a higher rate than the reported one	Suggest reviewing information provided in the section and confirming mortality rate	<p>Page 94 notes that the bear mine mortality rate is defined as “bear mortalities due to mine related activities”.</p> <p>Page 94 then clarifies that, in 2021, following a post-mortem assessment, it was confirmed that the euthanized bear had been in conflict with another bear and was not injured by interaction with the mine.</p> <p>Page 95 clarifies that the death of a bear cub in 2001 was due to tranquilization – which was not performed by mine personnel and was not due to mine related activities.</p> <p>As such, the bear mine mortality rate was calculated as 0.13 over the 23-year monitoring period (since 2000).</p>
6	Wolverine Observations Page 96	There are inconsistencies between the information in the discussion and what is presented in Table 17. For example, the text says there were 9 sightings in 2022, and the table shows 8. Then it says 2008 had the highest sightings, but 2016 has higher.	Suggest reviewing information provided in the section for accuracy and consistency	<p>DDMI updated the text on page 96 and clarified that there were nine reported instances over the course of eight days. Please note that the related row in Table 18 indicates the “Days with Visits” as opposed to reported instances.</p> <p>DDMI also updated the text following Table 18.</p>
7	Discontinued Programs	For the discontinued programs, may you provide more information regarding the decision to discontinue.	Suggest reviewing sections that discuss programs that were discontinued and provide more information.	<p>The Wolverine section has been updated with further information explaining discontinuation of wolverine DNA surveys</p> <p>The Grizzly section has been updated with information explaining the discontinuation of grizzly DNA surveys.</p>
8	Regulatory Instruments	Regulatory instruments aren't discussed or listed wholly. Section 5.1 of the agreement mentions the explosives factory licenses, these are not mentioned in the report. However, the information on page 90, in the last paragraph suggests there were some blasting activities. Transcripts from TK session 15 also suggest there was blasting in 2022	For instruments that were not applicable for this reporting period but were used in the past, you may mention them and give information on the years during which they were applicable. For those mentioned in the Agreement that have	Regulatory Instruments are not listed in the Annual EAAR as they are not a requirement of the Annual Report under Section 12.1 of the EA.

Table of Responses to EMAB and GNWT-ECC Recommendations on Draft 2022 EAAR

			never been applicable, please communicate as well.	
9	Management Plans	<p>There are inconsistencies when comparing the management plans as in the environmental agreement against the ones mentioned in the report. ECC acknowledges that there have been a lot of changes and some management plans' scope was included in other plans, leading to the differences noted. However, if possible, can the evolution on the management plans be clarified to ensure all requirements are accounted for. For example, there is no emergency response management plan (a requirement of the environmental agreement), this may have had been included in other "response plans" noted in the EAAR. The blasting/ explosives management plan (an Environmental Agreement requirement) may have some or all of its scope included in the contingency plan (a water license requirement). However, this is not clear.</p>	<p>Recommend including a table to help map the way the plans have evolved against the applicable agreements' requirements. This will make it easy to confirm compliance for management plans.</p>	<p>Section 12.1 of the EA states that the Annual Report is to include a list and abstracts of all environmental monitoring plans and programs. These are presented in Tables 2 and 3 in the 2022 EAAR. It does not specify the exact management plans listed in Section 6.2 of the EA.</p>

Attachment 3: 2022 EAAR

2022 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 twentieth (20th) year of operations during 2022. Mining at the A21 pipe (mineral deposit) commenced in 2018 and continued in 2022 and underground mining continued at A154 and A418 pipes.

This report talks about the results of Diavik's environmental monitoring and management programs during 2022. Copies of the reports listed can be found in the EMAB registry (in their office, or [on-line library](#)) or the Wek'èezhìi Land and Water Board [public registry](#).

Summary of 2022 Environmental Activities

Mine Footprint

In 2022, the Mine footprint increased by 0.04 square kilometers. The total loss of terrestrial and aquatic habitats to date from Diavik mining activities (11.59 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 Area - 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 Interim 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 2022. Discussions with Government of the Northwest Territories Environment and Climate Change [GNWT-ECC (formerly GNWT-ENR)] during the 2021 Diavik Mine Wildlife Monitoring Meetings indicated that aerial surveys can be discontinued as part of Diavik's caribou monitoring. There were no caribou deaths related to the mine in 2022. There was two instances where action had to be taken to deter a single caribou away from vehicle traffic and mine infrastructure in 2022.

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 were 2 raptor deaths on the mine site in 2022, the cause of death was not identifiable for either. There were no relocations for wildlife in 2022. The next regional raptor nest monitoring survey is planned for 2025. GNWT-ECC conducts this survey with the support of Diavik 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. Wolverine track surveys were completed in 2022 and results indicate that wolverine presence in the study area continues to be stable.

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 2022, the amount of dust was slightly higher than in 2021 and about the same as was seen in 2020. 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 requirements for water leaving site. The levels of chemicals in the snow in 2022 were higher than 2020 or 2021, but were similar to years prior to 2010.

The Diavik Vegetation and Lichen monitoring studies were not conducted in 2022. These studies were last done in 2021 and are expected to be completed next in 2024.

In 2022, a total of 79.0 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 2022. 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 2022 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 2022; however a Lake Trout parasite study was started following up on observations from the 2021 AEMP TK Camp. This study will be completed in 2023.

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. The effect is small and Lac de Gras continues to be a nutrient-limited lake with low productivity.

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 2022 is provided in this Report.

In 2022, in-community and in-person engagements continued to be impacted due to Covid-19 and a considerable number of engagements, particularly during the first half of the year, were completed by telephone and videoconference. Diavik worked with community partners to ensure that engagements were adapted to suit the needs of the community during this time. Use of technology, translation and other methods were modified to maintain engagement. Some in-person meetings were able to occur, and site visits were restarted towards the second half of the year.

Topics of communication included Processed Kimberlite to Mine Workings (PKMW) Project, Water Licence amendment updates, mine closure and reclamation activities, incorporation of Traditional Knowledge (TK) and the development of a TK Closure Watching Program, Final Closure and Reclamation Plan (FCRP) discussions and workshops, and two 2022 TK Panel sessions. 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 impractical 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 2022, Diavik Diamond Mines (2012) Inc. (DDMI) brought a community member from Łutselk'e to site to assist in the wolverine track survey program. Covid-19 outbreaks precluded the possibility of bringing groups of community members to site.

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 4.2 million litres of diesel fuel use and approximately 11,336 tonnes of emissions (CO₂e) in 2022. The turbines have flashing lights to help deter wildlife and reduce bird strikes from the rotating blades. Additionally, approximately 234,204 litres of waste oil were collected to be used in the waste oil boiler during 2022. Since it was commissioned in 2014, a total of just under 2.0 million litres of waste oil has been burned to create heat, rather than having to ship it off-site.

Diavik continues to look for new ways to reduce energy needs across site. Additional energy efficiency measures include: heat recovery from the electricity generators and boilers, use of LED lighting in buildings, photocells installed in outdoor light poles, installation of variable frequency drive pumps around site which limit energy requirements, installation of light timers, decommissioning of unoccupied buildings, installing digital thermostats, and reducing heat in infrequently used buildings. In 2022, these energy savings projects saved approximately 211,861 litres of diesel fuel which offset approximately 6,042 tonnes of emissions (CO₂e).

Compliance and EMAB

The 2021 EAAR was deemed to be satisfactory by the Deputy Minister of the GNWT-ENR (now GNWT-ECC) on December 21, 2022. A copy of the Deputy Minister's letter on the 2021 Environmental Agreement Annual Report is provided in Appendix I.

The EMAB and Diavik exchanged letters relating to topics such as the review of and recommendations regarding the air quality environmental monitoring program and the wildlife management and monitoring report, proposed monitoring of nitrogen dioxide (NO₂) and other miscellaneous items.

Thank you/Marsi Cho/Masi Cho/Quana to the Kitikmeot Inuit Association, Tłıchǫ 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 our resources are used wisely.

ʔerehtł'is Háłı Ts'ı Hanı Nedúwé

Diavik diamond mine tsamba k'é theṛá sɨ́, Lac de Gras húlye Jaḏíṛí ʔedzagh Nën theṛá sɨ́ ʔeyër East Island húlye nu theṛá sɨ́ ʔeyër t'a theṛá ʔat'e, Beghúldesche ts'ɨ́ yudázé ts'ën tonona dechën háníłtha húk'e theṛá. 2000 núłtágh kú, Diavik sqłághe ʔek'éch'a dëne déḏline ts'ɨ́ ʔáne xa k'áldé dáł sɨ́ xél chu yunághé ts'ɨ́ níé ts'ën k'aldhër chu jaḏíṛí ʔedza nën ts'ɨ́ níé ts'ën k'aldhër xél t'at'ú ní hadı xa ımashı hełts'ı́, that'ın yatı t'á Environmental Agreement (Agreement) húlye. ʔedëri ımashı sɨ́ Diavik tsamba k'é theṛá ghár t'at'ú níé ts'édhır ch'á yałnı xaq sɨ́ bek'oréht'ıs, ʔeyı yeghár ʔeghálana xa. ʔedëri ımashı hál sɨ́ ʔeyı beghár ʔedëri Environmental Monitoring Advisory Board (EMAB) húlye nuhút'ágh, theñe ts'ën t'ası hałnı xa; ʔedëri Board sɨ́ t'at'ú ʔereht'ıs beghár ʔeghálada xaq sɨ́ hałnı-u, tth'ı ní ts'édhër ch'á t'at'ú ʔeghálada xa snı sɨ́ ʔeyı hát'e-u háq xa hałnı ʔat'e. Diavik diamond mine tsamba k'é theṛá, 2022 k'e beghálahdą sɨ́, dı́ nóna (20) gháy xa beghálada ʔat'e. A21 pipe húlye (tthe betagh tsamba hulı) 2018 núłtagh k'e beghálada búnıdhër-u, 2022 k'e ʔalú beghálada háq -u, A154 chu A418 níyághe ʔeyı tth'ı ʔalú beghálada háq.

Ƴed ri  ereht is s , 2022 k'e t'at'  Diavik n  ha ni-u, t'at'  n  had  yegh lana s ,  ey  gh  t'e. Ƴed ri  ereht is s , EMAB h lye t'a  ereht is the  s  (bets'  office the  s   ey r-u, tth'i computer y  t'al s   ereht is ne   xad w le bek' n ,  ey r tth'i the   at'e)  ey r the -u, hat'ele d , Wek' ezh   Land and Water Board h lye  ey r t'al s   ereht is ne   xad w le  ereht is the  s   ey r tth'i the   at'e.**2022**

K'e T'at'ú Ní Badí Beghálahda Sí Ghà Dënexél Hadí

Tsamba K'é T'a Ní Theṛa

2022 núltagh k'e tsamba k'é t'a ní k'e thewá sí, dewáiyá raja 0.04 square kilometers húlye háilyá t'á. Diavik diamond mine Project húlye nút'ágh tthe, tsamba k'é nútágh t'á t'at'ú t'así ts'édhír xa hunidhén bek'aunehtágh hlyé sí reyí t'at'ú ní ts'í chu tu yághe ts'í t'así wedú rane xa hunidhén sí Diavik tsamba k'é thewá sí (11.59 square kilometers), reyí bek'áwó húle wat'e. Dú t'aílyá ní bet'át'í sí, reyí wáwáw ní bet'át'í xaile hunidhén, hat'e húlí t'a tthedhír wáldhír hála that'in yatí t'á Waste Rock Storage Area - South Country Rock Pile (WRS-SCRP) húlye chu Waste Rock Storage - North Country Rock Pile (WRS-NCRP) húlye weyér t'a tsamba k'é dárétágh t'wágh dé ní wéla nanelye ghá núdhér dé reyí dewáiyá ní t'át'í xa dé hane xa.

T'anch'ay nanelye

2004 kú, Diavik tsamba k'é dárétá t'á dé t'at'ú t'á'chay dánanilye xa sí k'aunetagh húní'thër hylé rat'e. 7edëri bek'aunetagh sí, 2017 7eyi kú noot'é. 7edëri t'a ho'é hunidhën xa beghálada sí: t'así huneshe bet'át' t'a 7edlát'u t'a raté nezú t'así neshe-u, tth'í 7eł'ké'ch'a ts'ën t'á'cháy dáníye sí, 7edlát'u t'a de7á7s nezú neye t'a-u, tth'í 7edlát'u há7á dé t'á'cháy de7á7s nezú neye 7eyi net'j. 7edëri bek'aunetagh sí, tsamba k'é the7á bedá7étagh t'á dé, 7eyër náré t'at'ú t'á'cháy nanelye sí, 7edlát'u t'a de7á7s nezú

dáníye t'á, ɣeyi t'a net'-u, t'a hurichá sí ɣeyër nezú t'á ancháy dánílye búret'í t'á. ɣedëri beghálada sí, 2004 kú t'así neshe xa nílya hílé sí, dú t'at'ú dáníye sí ɣeyi tth'í net'í. 2018 núltágh k'e ɣedëri ghá final report húlye nade ɣereht'ís hálí-u, t'anódhër sí benánadé, Diavik bets'í Closure and Reclamation Plan (Version 4.1) húlye ɣeyi t'a húlqá sí, bexél ɣalye xa dé beghá nánadé.

Ch'áđí

ɣetthën badi háqá sí, ɣeyër náré ɣetthën dól dé ɣetthën t'arát'í sí (tsamba k'é theɣá t'á to ɣeyër nár t'así ɣeghálada t'á to ɣetthën t'arát'í sí ɣeyi badi) ɣeyi xa badi. Yudází ts'í Bathurst caribou húlye ɣetthën t'a ts'ën dzérélt'í sí yudází ts'í t'a ts'ën dzérélt'í xa sní, hát'u dzérélt'í-u ghay k'é t'a ts'ën dzérélt'í sí ɣeyi bet'á Lac de Gras ts'í ɣetthíze ts'ën tó nazí ts'ën tó dzérélt'í xa bek'órejá ɣat'e. Xayt'ás dé ɣetthën ɣeyi tu theɣa ts'í ɣetthíze ts'ën ɣat'í xa dásní hájaile 2018 núltágh k'e, tth'í ɣetthën bek'oth kál bek'e dáthela ɣá Lac de Gras ts'í nazí ts'ën ɣat'í sayízí ts'ën nalt'í ghá núdhër dé, 2011 ts'í hát'í ɣat'e. 2022 núltágh k'e dzeret'áy t'á ɣetthën hultagh sí, bedí húlí sát'ele t'á hályaile. 2021 núltágh k'e ɣeyi Diavik Mine Wildlife Monitoring nádáití hílé sí ɣeyi kú Jadízí ɣedzagh Nën Ts'í Níé Ts'ën K'alldhër bechëlekui Environment and Climate Change [GNWT-ECC (t'atthe GNWT-ENR húlye hílé)] húlye sí dení hehedí-u, Diavik dzeret'áy t'á ɣetthën hañní sí ɣeyi hút'agh yeghánaile xadúwíle yéñí. 2022 k'e tsamba k'é theɣá ts'í ɣáne ɣlággh huli ɣetthën tháidhër hílé húl'íle. 2022 núltágh k'e nák'eneth ɣlággh ɣetthën beschën dzérélt'í ch'azí chu tsamba k'é theɣá dasí dáthela ch'azí ɣetthën yuwé níjú hílé.

Nághaye-u, dleze-u tth'í jischogh tth'í ɣeyër tsamba k'é theɣá nár búret'í. ɣeyër nár ch'áđí het'í dé bek'úrilt'ís ɣat'e, ɣeyi ghár t'anílt'e k'éneeth t'at'í ch'áđí het'í sí bek'órejá xa t'á, tth'í ɣeyër tsamba k'é theɣá kúé dáthela sí, ɣeyi náré bet'ógh níle dé xa tth'í badi. 2022 k'e tsamba k'é háqá ɣeyër nár náke ɣyges t'así hena heldél hát'í thaidé húlí t'at'ú ɣaja sí bek'órejáile. 2022 núltágh k'e ɣlággh huli ch'áđí ɣedílya hílé húl'íle. 2025 núltágh k'e núdhër dé, ɣeyi ɣyges t'así hena heldél bet'ógh badi net'í nadl'í xa ɣeyi kú. GNWT-ECC húlye sí dení t'a ɣedëri hañní ɣat'e-u Diavik chu begháthhën tsamba k'é dáthela sí, yet's'éraní ɣat'e. 2017 k'e dleze betth'íghá nált's'í-u, bets'í DNA húlye net'í-u, ɣeyi beghár ɣeyër South Slave Geological Province húlye náré dleze nádé sí ɣeyi tsamba k'é theɣá t'á t'asájaile bek'órejá (t'at'ú ɣats'edí dleze t'at'ú dáníye sárat'ele-u deɣánílt'e ɣane). 2022 núltágh k'e nághaye beké káúnetagh hílé-u, ɣeyi ghár ɣeyi tsamba k'é theɣa náre ɣat'í t'asát'ele-u nághaye ɣat'í bek'órejá.

T'anchay Neshe-u, Ts'ër Dzérédhí-u, Tth'í Nílt's'í Ts'eji Dzérédhí T'at'e Sí

Haluka hant'u, yath nált's'í-u, nalghí-u, bet'agh t'anílt'e ts'ër dzérédhí húl'í net'í-u, t'at'í ts'ër-u, tth'í ɣeyi ts'ër betagh t'at'í náidíshíne húl'í sí ɣeyi tth'í net'í. ɣeyi begháthhën ts'ër dzérédhí nált's'í xa t'así dáthela sí, ɣeyi beyé net'í-u, tsamba k'é theɣá t'at'ú ts'ër t'at'ú dzérédhí-u, t'anílt'e ts'ër dzérédhí sí ɣeyi tth'í hultágh-u badi. 2022 núltágh k'e, t'anílt'e ts'ër dzérédhí sí 2021 núltágh k'e ɣeyi kú t'anílt'e ts'ër dzérédhí hílé sí ɣeyi ɣáqázaze ts'ër dzérédhí húlí 2020 núltágh k'e t'anílt'e ts'ër dzérédhí sí ɣeyi chu ɣet'élet'e. Tsamba k'é theɣá ch'azí súghá níthha xa dé, ts'ër dzeredhí k'áq ɣat'e-u hane xa sá hunidhën ɣat'e. Yath k'e ts'ër nátl'ir sí net'í ghár ɣeyi Water License húlye tu t'áát'í xa ɣereht'ís bet'alchúth sí, ɣeyi t'anílt'e tsamba k'é theɣá ch'azí tu ɣat'í yé t'anílt'e ts'ër xadúwíle héts'edí sí ɣeyi k'áq ɣat'e. 2022 núltágh k'e yath ta t'anílt'e náidí that'in yatí t'á chemicals húlye betagh húl'í sí 2020 chu 2021 chú k'e

2022 núltagh k'e Covid-19 húlye dekoth dáda nedhé ɣeyi t'á háyq'íla náhídel-u, dēne tsamba k'é theɣa ts'ēn dzérídil ɣile -u ɣeyi ghaye búnídhēr kú beyághe yatı t'á to that'in yatı t'á videoconference húlye ɣeyi ɣuɣı t'á dēne xél yailtı hıle ɣat'e. ɣeyi hánódhēr kú, Diavik háyq'íla dēne xél ɣeghádálana sí xél

[illegible]

T'así Góth Xél ?eghálana-u, Kún K'áꞑ Bet'átí

Diavik t'aníkt'e kún k'erek'áq sí ɣeyi t'at'ú k'áɔq ɔayile xa ɣeyi yek'áúnetagh ɔat'e. ɣeyi sí bet'á kúé hunédhën-u bet'á kón dék'an-u, kúé dáthela yís hunédhël ɣeyi ts'í harelyú háthël náłtsi-u yuwé t'así xa yet'át'í réłdzagh-u, tth'í yís bet'á húret'í kón dek'an sí that'in yatí t'á LED lights (háníkt'e kón k'erek'áq ɔat'éle) dólye t'at'í-u, bɣt'as photocells húlye daɣya-u, tsamba k'é theɔɔ ɣeyër náré variable frequency drive pumps dólye nílya bet'á dek'áɔq kón k'erek'áq t'á-u, beghár t'o hunédhën kún dík'áq nílya-u, kúé bet'á ɔat'íle sí ɔedílye-u, digital thermostats dólye ɣeyi tth'í nílya-u, t'a kúé halá bet'át'íle sí, hathël yuyághe náıldeth. 2022 núłtagh k'e ɣeyi dek'áɔq kún k'erek'áq xa réts'ágh sí, ɣeyi bet'á harelyú t'á 211,861 lígaló háníkt'e gësłín k'urełk'áq hıle-u, ɣeyi t'á 6,042 tonnes haıłdath emissions (CO₂e) húlye belër hıle.

2021 ts'ì EAAR húlye ɣłágh ghay hant'u ɣey ghá dënexél hadí ɣereht'is hałé sí, Jadízí ʔedzagh Nën Ts'ì Níé Ts'ën K'aldhër bechëlekui GNWT-ENR (du GNWT-ECC) húlye xa k'aldhër helj sí 2022 núltágh k'e

Tadhe Yatı Zá nónas ǵłághe k'e, ǵeyı ǵerehtł'is sát'ele hénı. ǵeyı k'aldhër 2021 ts'ı Environmental Agreement Annual Report ghą dëne ts'ën ǵeritł'is sí ǵedëri ǵerehtł'is bexél hełchúth ǵat'e Appendix I húlye ǵeyër t'a hełchúth.

ǵeyı EMAB húlye chu Diavik chu ǵełts'éheretł'is ǵanatł, t'ası ǵełk'éch'a ghą, ǵeyër náré t'at'ú ní ts'édhır ch'á xa badı háǵá sí beghár bı't'as t'aut'e badı t'at'ú súgha beghálodá hunıdhën yatı nílye nełǵı-u, tth'ı ch'ádı t'asáne ch'á badı ǵeyı ghą dënexél hadı-u, tth'ı ǵeyı nitrogen dioxide (NO₂) húlye t'at'e sí bodı snı ǵeyı tth'ı ghą heheritł'is-u, tth'ı beghąłthën ǵełk'éch'a t'ası ghą ǵełts'éheretł'is.

Atanguyat Naitumik Uqauhiit

Diavik-kut piniqutininik uyaraktaqviat iniaqtuq Kivaliqhiani Qigigtami Lac de Gras-mi, Kanataup Nunatiagani, qanituani 3-hanat kilaamitamik tunungata kivaliqhiani kavamaqaqviup sitiuyup, Yalumaimit. Diavik-kut sainiqhihimayut Avatiliqinikut Agiqatiriigunmik (Agiqatiriigut) talimalu (5) Nunaqaqaqtut timiuyut kanatamilu ukiuqtaqtumilu kavamat 2000-mi. Agiqatiriigut uqaqtuq Diavik-kut qanuriliuruhikhaanik munariyaagani avatauyup uyarakhuiqtilugit. Piqaqtuqlu Avatauyumik Amirinikut Ihumakhaqhiuqtinik Katimayinik (EMAB) katimayiguqhimayut ilaganit Agiqatiriigutip; Katimayit inuknit amiqhiyit maliruagakhanik havauhiqmi atuliqniganiklu Agiqatiriigutip. Diavik-kut piniqutininik uyaraktaqvik avatini (20) ukiuni uyaraktaqviuhimayup 2022-mi ukiuq atuqtilugu. Uyaraktaqniq A21-mi uyaraktaakhani (uyaraktaakhata) atuliqhimayut 2018-mi atuqhimaqtuqlu 2022-mi nunaplu iluani uyaraktaqhimaqtut A154-mi A418-milu uyaraktaakhani.

Una unipkaa uqauhiqtuq qanuriliginik Diavik-kut avatauyumik amiriniganik munarijutiniklu havaanik atuqtilugu 2022 ukiuq. Ajikutait unipkaat titiraqhimayut naniyaulaqtut EMAB-kut naunaipkutiqaviani (titiraqviani, [qaritauyamiluniit makpiraaqaqvikmi](#)) uvaluniit Wek'èezhì-kut Nunaliqiyit Immaliquiyilu Katimayit [inuit naunaipkutiqaviani](#).

Naitumik Uqauhiq 2022-mi Avatiliqinikut Hulijutinik

Uyaraktaqvikmi Inigiyauyuq

2022-mi, Uyaraktaqvikmi inigiyauyuq agikligiaqhimayut 0.04 kikariknigani kilamiitanik (Sq. Km). Tamaita ahiuhimayut nunami immaqmilu nunagiyauyut ublumimut Diavik-kut uyaraktaqviani hulijutinit (11.59 kikariqnigani kilamiitauyut) mikitqiyuq nalautaaqtauhiyumit hivuliqmi Avatauyumik Ilituqhaqnigani uvani Diavik-kut Piniqutikhanik Uyaraktaqvikmik Havaami. Taja inigiyauyuq nahuriyauyuq aginiqhami taja havakviunigani, unaugituq Iqagut Uyaraktaanit Tuutquqtirivikmi – Hivuraani Nunami Uyaraqaqvik Iqagunik (WRSA-SCRP) Iqaguniklu Uyaqanik Tuutquqtirivik Nuna – Tunuungani Nunami Uyaraqaqvik Iqagunik (WRSA-NCRP) inigiyauyut mikiyumik agikligiaqhimayunaqhiyut utiqtitivaliatilugit ilitquhiinut nunanik ukunani hulijutini.

Nautiqtuifaarutit

2004-mi, Diavik-kut ilituqhailiqhimayut qanuq ikayuriagani nautiat nauvaliayaagani uyaraktaqvik umikpat. Una ilituqhaut iniqhimayup 2017-mi. Iniqtigakhat nalunairiagani: qanuq naupkariagani nautiat nautiqtuqakhanit, qanuq nakurutauniganik aalatqiit nautiqtuijutit nautiani nauvalianigini kitulu qanurinigat ihuaqhivaalirutauvat nautiat nauvalianigini. Ilituqhaut qiniqtuq nakuukmagaa aturiami aalatqiinik nautiqtuijutinik atuniituni humiliqaa uyaraktaqvikmi umikpat, ila una aulaniqatiaqmat ahiini agiyuni inigiyauyuni. Una havaaq ilaqaqtuqlu amigaitqiyaniq amiqhijutinik ilituqhaivikni ilagini nunani 2004-mit, takuyaagani nautialiqmagaa naunikhaini. Kiguliq unipkaa iniqhimayup 2018-mi

qanuriliginik ihumagiyaavlutik ilagiyaanik kiguliqmi titirauhiinik Diavik-kut Taja Umiktiqat Kiklimaktiqtauniganiklu Upalugaiyaunmik (Titirauhiq 4.1).

Uumayut

Tuuktunik amiqhijutit ihumagiyaqaqhimaagtut qanuriliuqniginik tautuuktauyunik (quungiaqhugit tuuktut ilituqhariagani qanuriliuqniginik uyaraqhiuqtuni ahiiniklu hulijutinit) tuuktut talvaniiliraagata ilituqhaqvikmi nunami. Aulanigit ukiuqtaqtumi Qigaup tuuktut humugauvaknigit ikayuqtut ihumagiyauniganik ukiuqtaqtumi ataaqniginik kivaliqhianut kivalianuluniit Lac de Gras-mi (Yalunaip tunungani nunani) aktuqniqaqtuq humiinigini ukiumi nunagiyaini. Nalunaiyaqat nalautaaqtauyut tuuktut aulaniginik kivaliqhianut tattip ukiakhami, qanuriliginik 2018-mi aalagatqiyuq uumanga nalautaaqtauyumit amigaitqiyalu quguhiniqtautilgit tuuktut aulavaliayut ualiqhianut ilagani Lac de Gras-mi hivuraani ataaqniginik 2011-mit. Tuuktut tikmiakut naunaiyautit aturiaqaqhimagitut iniqhimayuluniit 2021-mi. Uqaqatiriigutit Kavama Nunatiami Avatiliqiyit Hilaplu Aalaguqniganik [GNWT-ECC (hivuan GNWT-kuni ENR-kut)] atuqtilugit 2021-mi Diavik-kut Uyaraktaqviani Uumayunik Amirijutini Katimaniginik nalunairutiyut tikmiakut naunaiyautit aturuilaaqtut ilagiyaani Diavik-kut tuuktunik amirijutini. Piqagituq tuuktunik tuquhimayunik pijutauniganit uyaraktaqviup 2022-mi. Piqaqhimayuq malruiqtuqhuni upijutit aturiaqaqngiganik qimalatiyaagani atauhiq tuuktu ahinugauyaagani akhaluutinit igilrayunit uyaraktaqvikmilu napaqtikhimayunit 2022-mi.

Qalviit, akhait kilgaviilu takuukhauhimaagtut uyaraktaqvikmi nunami. Qaguguraagat takuyaunigit titiraqtauvaktut nalunairiagani qafiiqtuqniginik umayut takuyauniginik inigiyauyumi, atuqatalu kitunikliqaa uyaraktaqvikmi igluqpaknik ivavikhanik ubluliuqvgivlugiluniit. Piqaqhimayuq malruuknik niqainaqtuqtunik tuquhimayunik uyaraktaqvikmi inigiyauyumi 2022-mi, huuq tuquukmagaa nalunaiqtaulimagingmat tamakni. Piqagituq ahinut nuutirutinik uumayunik 2022-mi. Tuukliq nunami niqainaqtuqtunik uvluinik amirijutimik naunaiyaut upalugaiqtauyut aturiagani 2025-mi. GNWT-ECC-kut naunaiyaivaktut uumiga ikayuqtiqaqhutik Diavik-kunik ahiiniklu uyarakhiuqviknit. Qaganuaq akhait hiaginik ahivaijutinik DNA-git nalunaiyaaqniganik atuqhimayut 2017-mi qanuriliginilu takuupkaiyut piqaginiganik ihuitumik aktuqniginik nunami amigainigini akhait Yalunaip Tunungani Nunani (ila akhait amigainigit aulainaqtut amigaiqpaliavlutiklu) pijutauniganit Diavik-kut uyaraktaqvianit. Qalviit tumiinik naunaiyautit iniqhimayut 2022-mi qanuriliginilu nalunairutiyut qalviit talvaniitut naunaiyaivikmi nunami naamainaqtuuyaaqtut.

Nautiat, Puyuit/Hiuqat Hilavlu Halumaniga

Aputinik naunaiyautit piqataqhimayut upingaaraagat auktuqtitauvaktulu naunaiyariagani qanuraaluk hiuraqaqniginik apunmi qanirutuuniginiklu qanuraaluklu halumailruqaqniginik hiuqami. Hiuravaluilu piyauvaktut katitirutini nalunaiyaqtauvlutiklu qanuriliuqnigini agitilaagini humiiniginihiuqat uyaraktaqvikmit. Atuqtilugu 2022 ukiuq, qanuraaluk hiuraqaqniginik agitqiyauhimayuq mikiyuugaluamik 2021-mit ajikutavyaaniklu takuyauhimayut 2020-mi. Nahuriyaunigani, ikitqiyat hiuqat takuyauhimayut inigiyauyuni ugahiktuani uyaraktaqviup. Qanuraaluk halumailruqaqnigit hiuraqaqtut aputit aulagitut mikitqiyauvlutik Immaqmiq Aturiagani Laisiuyumit aturiaqaqtunik immavaluit

kuukpaliayuni inigiyaayumit. Qanuraaluk halumailruqaqnig it aputit 2022-mi agitqiyat 2020-mit 2021-miluniit, kihiani ajikutariyait ukiuni hivuani 2010-mit.

Diavikmi Nautiat Tuuktulu Niqigivagait amirijutitik naunaiyautit atuqhimayut 2022-mi. Ukua naunaiyautit kiguligimik atuqhimayut 2021-mi nahuriyaayulu iniriagani 2024-mi.

2022-mi, atautimut 79.0 milian liitanik uqhuqyuanik atuqhimayut aulanigani uyaraktaqvik inigiyaayuuq.

Immaq Iqaluilu

Diavik-kut atuqhimaagtut Immaqnik Aktuqniginik Amirijutitik Havaamik (AEMP) inigiyaayumilu Naunaiyaqtauniganik Havauhiyuniik Havaaq (SNP) amiqhijutitik 2022-mi. AEMP-mi naunaiyaivaktut aalatqiinik ilagiyainik tattip aalatqiini ukiuni nalunairiagani aktuqtaujutaulaagtut Lac de Gras-mik uyaraktaqvikmi hulijutit. Qanurinig it naunaiyagakhat pihimayut qanituani uyaraktaqviup (qanituani ahiqpanilu havakviuyut) ugahiktuanilu uyaraktaqviup (ugahiktumi maniqami havakviuyut) 2022-mi ilaqaqtut immaq hunaqaqniganik (halumaniganik) niqikhalu, kumaruilu (mikiyunuit nautiat uumayulu immaqmi – agitilaaga qanurituunigilu), iqaluilu. Igilraat Qauyimayainik (TK) ilituqhautit AEMP-mi atugitut 2022-mi; kihiani ihuut kumaruqaqniginik naunaiyaut atuliqhimayuuq kiguani takuyauhimayunik 2021-mi AEMP-mi TK-nik Maniqamiuvikmi. Una ilituqhaut it iniqniaqtuuq 2023-mi.

Amigaiqnig it atautimiunig it niqauvaktut tikitpaliayut aalatqiini ugahiknigini Uyaraktaqvikmit (pijutaunig it aalatqiikniginit ukiuplu hunauniganit) nalunaiqtuuq Uyaraktaqvik amigaiyaiyuuq niqauyukhanik Lac de Gras-mi. Aktuqniga mikiyuuq Lac de Gras-lu aulagituq niqikhanik ikituuginaqniginik tahi q nauvalaaqviugitunilu hunaniliqaa.

Aalaguqnig it tahi qmi pijutaulaagtut amigaiqniginit niqikhat nunap iluanit immaqmit qaraqtitaijutinilu. Diavik-kut mikhiliriaqtitinahuat qanuraaluk niqikhaqaqniganik tikitpaktunik Lac de Gras-mik atuqhugit qagaqtitaijutini munarijutitik, qayagivlutik tikuaqhiginik qagaqtitaijutikhanik hanahimayunik immaqlu munariniganik immarikhiniganiklu.

Nunagiyaayuuq Upipkaqniga/Igilraalu Qauyimayainik

Diavik-kut aturumainagtut avanmut uqauhiriyaagani qanurilivalianiganik avatauyumik amirijutitik umikpaliakpalu upalugaiyautitik havaamik nunagiyaayunilu ilaayunik. Diavik-kut havaqatitaaqtut atuni ilaayunit Agiqatiriigutimik (PA) timiuyuuq naunaiqnahuariami ihuaqtumik qanuriliurhikhamik hunauliqalu atuliriagani taimaitut huliviuyut. Naitumik uqauhiat Diavik-kut upijutainik avatiliqinik PA-lu nunagiyaayumi timiuyut atuqtilugu 2022 ukiuuq pipkagaayut uvani Unipkaami.

2022-mi, nunagiyaayumi takutivlutiklu hulijutit aktuqnikaqhimaagtut Qalakyuaqni q 19-mit amigaitulu huliviuyut, ukualuat atuqtilugu hivuliuyut napaani ukiup, iniqhimayut hivayautikut qaritaayakulu qungiarutikut katimajutit. Diavik-kut havaqatitaaqhimaayut nunagiyaayuni ikayuqtilu ukua huliviuyut ihuatiariagani nalaumayaagani ihariagiyainik nunagiyaayumi talvani pivikhaqaqnigani. Atuqnig it nutauniqhat, nuuptirutit ahiilu pigiarutaayut ihuaqhaqhimaayut atuqhimaariagani hulijutit. Ilagit takutivlutik katimanig it atuqhimayut, inigiyaayumik pulaaqnig it atulifaaqhimaayut atuliqnigani tuklianik napaani ukiup.

Uqautauyut tuhaumajutini ilaqaqtut Uyaqiqihimayunik Uyaraktaanik Uyaraktaqviki Havauhiqnut (PKMW) Havaamik, Immaqmiq Aturiagani Laisiuyuq nutaaguqtiqniqanik, uyaraktaqviki umikniganik kiklimaktirutiniklu hulijutinik, ilaliutiniginik Igliraat Qauyimayainik (TK) pivalianiganiklu TK-mit Umiktiqniqagut Qungiaqniqmiq Havaamik, Kiguliqmiq Umiktiqniqanik Kiklimaktiqniqaniklu Upalugaiyaunmik (FCRP) uqaqatiriigutinik ayuiqhavikniklu, malruuklu 2022-mi TK-nik Nalaktit katimaniginik. Diavik-kut uuktuqpaktulu akyariagani nunagiyauyumi ilaayut uyaraktaqvikmut takuyaagani uyaraktaqvikmiq ihivriuriaganilu hanianiitut avatauyuq nanminik iikmiknut. Ihualimaginmatauq akyariagani tamainik inuknik inigiyauyumut, nahuriyauyuq ukua ilauhimayut uqariagani atuqhimamayamiknik aalanut inuknut agilramikni nunagiyauyumi.

2022-mi, Diavik-kut Piniqutikhanik Uyaraktaqviit (2012) Timiuyuq (DDMI) akyaqhimayut nunagiyauyumi ilaayumik kuttselk'e-mit inigiyauyumut ikayuriagani qalviknik tuvyaqniqinik naunaiyayaagani havaami. Qalakyuaqniq 19 hatqiqniginik hivulihimayut atulaaqniqanik akyariami ikayuqtiriit nunagiyauyumi ilaayunik inigiyauyumut.

Nutaat Nutauniqhat Aulajutinilu Aulaniqatiaqniqit

Piqaqtuq hitamanik (4) anurituutinik aulapkariagani Diavik-kut uyaraktaqvianik, havaktulu atutiaqpagaat aulaniqatiaqniqit ukua anurituutit atuqtilugu ukiuq. Anurituutit atuutaugitut 4.2-milian liitanik uqhuqyuanik atuqtunik qanituani 11-tausit 336-tanik uqumainiginik puyuqnik (CO₂e) 2022-mi. Anurituutit qaumagaqtaqtunik qulilgit ahiqpaniipkariagani uumayut ikiklivaaliriaganilu tikmiat tuluqtut tuquvaktunik kaivitunit aguutainit anurituutit. Ilagiarutit, qanituani 234-tausit 204-liitanik iqagut uqhuqyuat katitiqtauhimayut atuqtauyaagani iqagunik uqhuqyuanik ikulativikmi atuqtilugu 2022 ukiuq. Aturiaqtauniganit 2014-mi, atautimut tugaani 2.0-milian liitanik iqagunik uqhuqyuanik ikulatiyauhimayut uunaqutigiyaagani, aulaqtihiimaitumik ahinut inigiyauyumit.

Diavik-kut qiniqhiahimaaqtut nutaanik qanuriliurutinik mikhivaaliriagani aulajutinik ihariagiainik humiliqaa inigiyauyumi. Ilagiarutit aulajutini aulaniqatiaqniqinik naunaiyautit ilaqaqtuq: uunaqniq utiqtitagaani alruyaqtuutinit igniqutinit igniqviknilu, atuqniqinik LED-nik quliqnik igluqpakni, inmiknik ikilaaqtut iliyauniginik hilami quliqaqvikni napaqtini, iliyauniginik aalatqiit aulaniqaqtunik papautinik humiliqaa inigiyauyumi kikliqarutaayunik aulajutinik aturiaqaqtunik, iliyauniginik qulit qamitautainik, aturuiqniqinik inuqaruigtut igluqpait, iliyaunigit nalunaitqianik uunaqniqanik naunairutinik iglumi, atuqpalaaginiginiklu uunaqutit atuqtauqatagituni igluqpakni. 2022-mi, ukua aulajutini akikhivaalirutaayut havaat ilipkamajutaayut qanituani 211-tausit 861-liitanik uqhuqyuanik aturutaugitunilu qanituani 6-tausit 042-tanik uqumainiganik puyuqnik (CO₂e).

Malitiaqniqmiq EMAB-kulu

2021-mi EAAR-kut Ihumagiyauyut naamagiyaaqniqinik Tuuklianit Ministauyup GNWT-kut ENR-kunit (taja GNWT-kut ECC-kunik December 21-mi 2022-mi. Ajikutaa Tuukliata Ministauyup titiqijutaanik 2021-mi Avatiliqinikut Agiqatiriigut Aipagutuaraagat Unipkaa pipkagaayuq Ilagiarutaani I-mi.

EMAB-kut Diavik-kulu avanmut tunihijutiyut titiqanik pijutiqaqtunik uqauhiqnik ajikutainik ihivriurutit ukuniga atulirumayaayuniklu pijutiqaqtunik hilap halumaniganik avatauyumik amirijutinik havaamik

uumayuniklu munarijutinik amirijutiniklu unipkaamik, atulirumayauyumik amirijutimik aupayagatunik puyuqnik (NO₂) ahiiniklu aalatqiinik piqutinik.

Quanaqut/Marsi Cho/Masi Cho/Quana ukua Kitikmeoni Inuit Katimayiit, Tłı̄chǫ Kavamauyuq, yalunaimi Itqilrit, Łutsel K'e-mi Itqilrit Tunuunganilu Yalunaip Ilagani Qavlunaaqat Katimayiit akhuurutainik havaktimiknit, manikhaqhiuqtut, ilikulu ilaayut havaqatiqaqtut Diavik-kuni havaktunik 2019-mi. Ikayuqhimaaniginik Diavik-kunit Ilauniganik Agiqatiriigunmi ikayuqtinit ikayuutinik aturiagani avatauyumik aktuqniginik mikiniqhauyaagani, ihuaqutivulu atuqtautiaqpagiagani ihuaqtumik.

K'àodèe Godı Nıhtı'è Nek'q̃a

Diavik sòqòmbakweè gha sòqòmbakweè, Ek'atì k'e East Island gòyeh k'e gòròq, Canada wek'èezhì Edzanèk'e Sòqòmbak'è kògòlaa gots'q taikw'eènnò ech, ch'k'è-k'àbatsò ts'ònèe gòròq hòt'e. 2000 ekò Diavik, Dòsòqòlì s'fàì xàgèè'aa, l'daà dèek'àowodeè eyits'q Edzanèè dèek'àowo g'g'g'g' goxè Dè Ts'jowowì Ts'à Nàowòò (EA) k'e edìizìdek'enèy'g'g'g' t'f'è l'è. Eyì nàowo gèhts'g'g' s'ì Diavik ekò sòqòmbak'è wek'e eghàlagedaa wenits'q dè ts'jgowì ts'à g'xoehdì ha dek'eèht'f'è. Eyì nàowo wexè Dè Wexoedì k'e Dèhkw'ee (EMAB) wehòl. Eyì wek'e dèhkw'ee s'ì gonèk'e d'q gha kehog'ihdì d'qò g'g'g'g' s'ì wenàowo dek'eèht'f'è weghàà g'ghàlada ha eyits'q nàowo hòl'g'g' k'èè ek'ìzeh ha. 2022 k'e Diavik sòqòmbakweè gha sòqòmbak'è gòròq s'ì d'ì xè naànq (20) xo wek'e eghàlag'g'g' dà hòt'e. Sòqòmbakweè xàzee gha satsòweè A21 (sòqòmbakweè gòt'qò k'è) wexèhòq'wo eyits'q 2022 ts'q wek'e eghàladà, eyits'q dègot'f'aa satsòweè A154 eyits'q A418 gòlaa s'ì f'f'f' dègot'f'aa weghàlada.

Dii wegodiì n̄ht'è wek'e Diavik 2022 ghoò k'e dè wehoediì eyits'q dàani gighàladaa t'à dii wek'e dàgòht'ee dek'eèht'è. Wegodiì n̄ht'è naho'èe sì EMAB gin̄ht'èkq whela (gin̄ht'èkq hanì-le-dè satsòkwì k'e online library k'e dek'eèht'è) hanì-le-dè Wek'èezhì. Dè eyits'q Tì Nàowòò k'e Dèhkw'ee dọ giizì dek'eèht'èe public registry k'e.

2022 DÈ TSÌGOWII TS'À DÀANÌ GIGHÀLADAA WEGODÌÌ NEK'ÒÀ

Sq̣əmbak'è Wetl'axq̣ə Gòʔq̣ə

2022 k'e Sòmbak'è wet'axòò gòlaa sì 0,04 etsì hagòowa ts'ò 1doò adzà. Diiðzèè hazòò t'à dè k'eeyts'ò tì yìì asìì nàdèè sìì hajtso ts'ò Diavik Sòmbakweè Degoo xàzee t'à 11.55 etsì (11.55 square kilometres) ts'ò wedihòtì hót'e, eyì sìì dakwetòò Dè Tsìgowìì gha Wexàetaa ghò nàdàà gogìde sìì gha dek'ajì hót'e. Dii weghàladaa t'à denahk'e wet'axòò gògòò agode ha gììwò, kwets'ìì nàk'e whefaa k'è – South Country Rock Pile (WRSA-SCRP) eyts'ò North Country Rock Pile (WRSA-NCRP) hagode ha-le, siìgogehajì njdè njdè yaàzea wet'axòò gògòò agode ha sonì.

Dè Nagoehsee

2004 ekò Diavik sqòmbak'è wedaàtq t'axqò nìdè dàani ɬt'ò nadeeseè agele ha gixàeta xèhogɬìhwho. 2017 k'è eyìi gighonqt'è ɬlè. Dii hanì agele ha gɬɬwq: dàani nìdè ɬt'ò wejìi gots'q denahk'e nezɬì dehse ha, dàani etadɬì xàaa k'èè dè k'e nezɬì dehseè ade ha, dàgòht'ee wek'e gòɬaa nìdè nezɬì dehsee ha. Wexàgetaa sìi sqòmbak'è eneètɬì nìdè wemqò dè goɬchà-lea k'e hanì etadɬì ɬt'ò dehse nìdè nezɬì ha gɬɬwq, eyìi-le sqòmbak'è gòchàa gòlaa gha nezɬì adzàa t'à. Eyìi weghàlada xè 2004 gots'q dè k'e ɬt'ò dehsee wexàetaa gixoehti, whaà hoòwo t'axqò asɬì nezɬì dehse gha. 2018 k'è wegodiì nɬht'è nqde weghonahqt'e, asìi wegòt'qò sìi Diavik Eneètɬì gha ɬatsaa dek'eèht'è eyìts'q Sìinagodlee K'e Eghàlageda gha diì whaà-lea wek'e dek'eèht'è (Version 4.1).

Tits'aàdìi

Ekwo dàanì k'ehogēaa gha ɬaà gixots'ehdi, ekwo wexàtaa k'è aget'ɬ nɬdè (sqòmbak'è kwe xàzee eyits'q asagot'ɬ nɬdè ekwo daget'ɬ gixoehti). Hozii goekwo (Bathurst caribou) edj k'ēaa sii chɬk'e gots'q nadeeaa nɬdè dàà ts'q hani-le-dè Ek'atì ts'qòhk'e k'àbatsq ts'q nadeeaa gedii sii ts'adaedi hq't'e, xok'e edj k'ehogehdee ts'ihqò aget'ɬ. Xat'q k'e Ek'atì gots'q k'àbatsq ts'q nadeeaa ha gedii weghàts'eda nɬdè 2018 k'e hagòdzà-le; gik'o k'e satsq whelaa sii deqatɬq dàà ts'q Ek'atì wemqò ets'ageèdee sii saz ts'q nadeeah, 2011 gots'q haget'ɬ. Nɬht'èk'et'aa t'à ekwo wexoedii wede agɬlà hani-le-dè 2022 k'e siidlà-le ɬlè. Edzanèk'e Dèek'aowo Gomqò Dè Gòqò eyits'q ɬadɬ Agot'ɬ {GNWT-ECC (GNWT-ENR ɬlè)} 2022 k'e Diavik Sqòmbak'è Tits'aàdii Wexoedii Etegeèhdi ekò Diavik hòt'a nɬht'èk'et'aa t'à ekwo xogiihdi wede agele ha gedi. 2022 k'e sqòmbak'è gòqò ts'ihqò ekwo wiiɬii eɬajwo-le. 2022 k'e nàakee ekwo ɬaet'ea satsqbehchj ɬlii k'è eyits'q sqòmbak'è gha asii whelaa ts'qò nadegeèzi ɬlè.

Nògha, sahcho eyits'q tatsea ɬaà sqòmbak'è gòqò gà aget'ɬ. ɬɬk'èa asagot'ɬ geɬ nɬdè wegodi gihchi, dàtɬqeh't'aa tits'aàdii dàhòt'ɬ sqòmbak'è gà gigoat'ɬ sii dek'enèget'è, eyii xè sqòmbak'è gà kò golaa k'e edeqò hani-le-dè edet'oh gehtsɬ nɬdè eyii sɬ wegodi gihchi. 2022 k'e raptor nàke sqòmbak'è gà eɬagɬdè, ɬɬah ayii t'à eɬegɬdèe gogɬihqò-le. 2022 k'e tits'aàdii t'asj tagogewa gòɬlè-le. 2025 k'e nɬdè ɬdat'à ekq nèk'e raptor weq wexoedi agele ha. GNWT-ECC gɬt'aa Diavik eyits'q sqòmbak'è eyii-le gòlaa eɬets'agedi t'à wexoedii agele ha. Di whaà-lea 2017 ekò gots'q sahcho weghà et'àiika gots'q DNA wexàeta ɬlè, wegodi ghàts'eda nɬdè ekq Slave-Geological Province nèk'e sahcho dàtɬq nàdèe gixè ɬadɬ agòdzà-le wègoat'ɬ (i.e. sahcho dàtɬq geeda xè sagòht'e-le eyits'q gixè ɬdoò agot'ɬ) Diavik sqòmbak'è gòqò ts'ihqò. Nògha weke k'è wexoedii sii 2022 k'e wegodi nɬht'è ghonagɬt'e, wegodi ghàa ɬaà asagɬt'e-le dek'eèht'è.

ɬt'q Dehsee, ɬeht'èdaedii eyits'q Nɬhts'ɬ Weta Dàgòht'e

Edaèhk'q taat'èe zah k'ahota gha zah gihchii sii ɬèhk'q agehɬ t'axqò weka ɬeht'è dàtɬq gòhtɬ eyits'q weta nàedi dàhòt'ɬ gòhtɬ gha gik'aehta. ɬeht'ègwì nàgehtsɬtqò yii gihchi gà dàtɬq whet'ɬ eyits'q sqòmbak'è gòqò ts'q dagqowa gots'q ɬeht'è gihchi gha wek'ahota. 2022 ekò ɬeht'è gɬjchii sii 2021 nahk'e yaàzea ɬdoò adzà eyits'q 2020 wèht'e lanì wègoat'ɬ. Dàgode ha ts'ɬwq k'èè agòdzà, sqòmbak'è gòqò ts'q gqowàa sii dek'aɬ ɬeht'è wègoat'ɬ. Zah weka ɬeht'èdaedii sii weyii nàedi dàtɬq gòhtɬ Tì Nɬht'è Gojchii gha ɬaà dek'aɬ k'e whetq, sqòmbak'è gòqò gots'q tì niilɬ gha. 2022 k'e zah yii nàedi dàtɬq gòhtɬ sii 2020 eyits'q 2021 nahk'e ɬdoò adzà hanikò 2010 wekwe xo whelaa xèht'e lanì.

Diavik 2022 k'e ɬt'q eits'q Ajj Nadehshee wexàeta-le agɬlà. Eyii wexàeta sii 2021 k'e nqde gighàɬdà ɬlè, 2024 k'e nɬdè wegodi ghonaget'è ha.

2022 k'e hazqò t'à tle 79.0 lemiyqò litres haatɬq wet'à sqòmbak'è gòqò weghàladà hq't'e.

Ti eyits'q ɿ

Diavik, Ti xè ɿadɿ Agot'ɿ Wexoedɿ Weghàladaa (AEMP) ɿaà gɿk'e eghàlada eyits'q 2022 k'e sɔ̀qmbak'è gòɔq wexoedɿ k'è gòlaa (SNP) ɿaà gɿghàlada. AEMP xo eyi-le taat'èe ti k'e ɿadɿ gòlaa k'e ti xàgeta, hanɿdè kwe xàzee k'è eghàlagedaa t'à edahghɔ Ek'atì xè ɿadɿ agot'ɿ nɿdè gɿgòhɔà ha. Sɔ̀qmbak'è gòɔq gà ti k'ahotaa gha ti gɿhchɿ (niwà-le eyits'q tanɿ satsòkqà gòlaa) eyits'q sɔ̀qmbak'è gòɔq ts'q niwà (niwà satsòkqà gòlaa) gots'q. 2022 k'e ti weta dàgòht'e (quality) eyits'q tèe asɿ gedèe eyits'q tèe asɿ kw'òà gòhtɿ (ɿt'q kw'òà eyits'q tɿts'aadɿ kw'òà dàhòt'ɿ ti yì nàdèe) eyits'q ɿwe. 2022 k'e AEMP gha Whaèhdqò Nàowoò (TK) xàgeta-le, hanìkò ɿwezqò wezàà wek'e whelaa xàgeta, 2021 ekò AEMP TK kò gòɔq wexèhòwòo ɿlèe sɿ k'e eghàlageda. 2023 k'e nɿdè wexàeta ghonaget'è ha.

Tèe asɿ gedèe ɿdoò adzà t'à sɔ̀qmbak'è gòɔq ts'q niwà agot'ɿ (ɿadɿ agot'ɿ eyits'q eyits'q dàht'e agòht'e weghàà) t'à asɿ gedèe Ek'atì yì nettqò adzà. Wet'à ɿadɿ agot'ɿ sɿ hòt'ò-le, Ek'atì ɿaà asɿ gedèe dek'aɔ weta whelaa, asɿ gedèe dek'aɔ hòlèe xè.

Tèe weta asɿ gedèe ɿq agot'ɿ t'à wet'à denahk'e ti xè ɿadɿ agot'ɿ. Diavik, kwe nàek'èe xogɿhdi eyits'q wet'à kwe nàek'èe hotì gɿhchɿ ti weta asɿ gedèe Ek'atì ts'q at'ɿ sɿ dek'aɔ at'ɿ ha hogeèhdzà, eyi xè ti xè nezɿ eghàlageda eyits'q ti sɿɔɿ sɿ t'à hogeèhdzà.

Kota xè Eghàlageda/ Whaèhdqò Nàowoò

Diavik, dè gomqò godɿ nàgehtsɿ eyits'q sɔ̀qmbak'è eneètɿ dàanɿ wexèhawee sɿ wet'à kòta dq gixè gogedo gɿgha wet'àaɔ. Diavik, Eɿexè Eghàlagedaa (PA) gɿɿɿ hazqò goxè eghàlageda hòt'e, hanɿdè dàanɿ nezɿ ɿexè eghàlagedaa eyits'q dàht'e eyi hazqò hagele ha gɿwq. 2022 k'e Diavik PA goxè dè gomqò gòɔq k'e eghàlagedaa sɿ godɿ nek'qà k'e dek'eèht'è.

2022 k'e Covid-19 tàdaa k'egwoo wets'ihqò kòta eyits'q dq xè eɿegeèhdɿ sɿ ɿaà gixè eɿadɿ agot'ɿ eyits'q asɿ ɿq hagehɔ sɿ t'à, xo dakwetqò tanɿ ts'q nèhòɿwhoo sɿ eyi t'a sɿ dɿ, eyi sɿ wet'àgots'edee eyits'q video t'à eɿets'eedɿ t'à weghàlats'ɿdà. Diavik kòta dq xè eghàlageda hanɿdè ayi k'e eghàlagedaa sɿ dɿ gogha kòta dq gɿt'aat'ɿ ha dɿ-le agele ha. Nàowo gòò t'à hot'ɿ, yatì gha etaati eyits'q eyi-le k'èe agot'ɿ sɿ ɿaà eɿexè eghàlats'edaa gha eɿadɿ adlà. Dq gixè eɿets'eèhdɿ wòhdaa hagòdza eyits'q xo tanɿ welq ts'q sɔ̀qmbak'è gòɔq dq ekqaget'ɿ gha wexènahòwò.

Asɿ k'e gogede sɿ dɿ wexè: Sɔ̀qmbakweè Hòlèe gots'q Kweè Xàzee Weghàladaa ts'q (PKMW), Ti Nɿht'è Nàowoò dɿ wègoat'ɿ, sɔ̀qmbak'è eneètɿ xè sɿnagodle gha dàgot'ɿ ha, Whaèhdqò Nàowoò (TK) xè eghàlagedaa, eyits'q TK Closure Watching Program wenàowoò hòlèe, Nqde Wedaètɿ eyits'q Dàanɿ Sɿnagodlea (FCRP) k'e gogɿde eyits'q welaà k'e eɿegeèhdɿ, eyits'q 2022 k'e nàakeè Whaèhdqò Nàowoò k'e dèhkw'ee xè ɿegadii, asɿ haàtq k'e gogede ha. Eyits'q Diavik kòta gots'q dq sɔ̀qmbak'è gòɔq ts'q gogewaa hogeèhdzà, hanɿdè ededaà t'à ekq sɔ̀qmbak'è gòɔq eyits'q wemqò dàgòht'e ghàgeda ha. Dq hazqò ekq gogewa ha dɿ, hanìkò edahxq dq gixè hagot'ɿ sɿ dq ɿdè edekq geèhkw'ee xè gogedo ha gɿwq.

2022 k'e Diavik Diamond Mines (2012) inc (DDMI) Łihtsok'è gots'q dq ƿè sòqmbak'è gòqòq ts'q geèhchì, ekq nõghakeè k'è gixàeta ha gots'adi gha. COVID-19 tàdaa k'egwoo agòdzàa t'à kòta gots'q dq sòqmbak'è gòqòq ts'q agogehƿƿ sù wets'aat'qò adzà.

Nàowo Gòò t'à Hot'ƿƿ & Deghàa Asù K'egohwhoo

Nƿhts' ƿ t'à satsòqets'aet'òò dƿ (4) gòhtƿ sù wet'à Diavik sòqmbak'è gòqòq etƿe agƿƿhwhq eyts'q dq eghàlagiidè sù xoghàa satsòqets'aet'òò nezƿ etƿee sù gít'àhogeƿhƿ. Nƿhts' ƿ t'à satsòqets'aet'òò wet'à 4.2 lemìyqò litres dek'aƿ tƿeèhk'òq t'à get'ƿ eyts'ò 2022 k'e tƿehloò xàekw'ee (co2e) 11,336 haàtƿòq aƿhda dek'aƿ adzà. Nƿhts' ƿ t'à satsòqets'aet'òò ek'aàk'q nait'ƿƿ wek'e dawhela t'à tƿts'aàdù wets'q aget'ƿ-le eyts'q webeè ets'aet'òò t'à dek'aƿ det'q k'e at'ƿ. Eyù weqòq 234,204 litres ekiyèè haàtƿ tƿee weghàhoòwoo sù nàgƿhtsƿ sù tƿeèk'q satsò yù gít'aat'ƿ 2022 k'e. 2014 gots'q hanì gít'aat'ƿ gots'q hazòq t'à 2.0 lemìyqò litres tƿee haàtƿ weghàhoòwoo sù wet'à gòkò gha goyù geèhk'q, ƿdaà naezee nahk'e nezƿ hq't'e.

Diavik, sòqmbak'è wete gòqòq ts'q dàanì dek'aƿ asù k'egohwhoo t'à aget'ƿ ha ƿaà gixàeta hq't'e. Denahk'e asù nezƿ k'egohwhù gha dù hanì weghàladaa: ek'aàk'q't'ù gha satsòetƿee eyts'q tƿeèk'q satsò gots'q wet'à edù nats'ì hchù, kò gòlaa goyù LED ek'aàk'qòq dèk'qò, mòht'a dechƿ nàwheƿaa k'e photocells t'à ek'aàk'qòq dèk'qò dawhela, sòqmbak'è gòqòq wemqò tƿ k'et'òò tadjƿ k'e whetq ats'ehƿƿ wet'à ek'aàk'q't'ù tq k'ehowù-le k'è agòht'e sù gha nezƿ, ek'aàk'qòq dek'aƿ dek'qò dats'ewa, kògokw'qò gòlaa sù wet'àhot'ƿ-le, wet'à goyù goìwù wek'èts'ichù t'à etƿe, eyts'q kò wet'àhot'ƿ-le sù dek'aƿ goyù k'ègedù edù ats'ƿhwhq. 2022 k'e eyù hanì wet'à asù k'egohwhù wets'q dek'aƿ tƿee k'ehowo weghàlada t'à 211,861 lemìyqò litres tƿee haàtƿ sù wet'à tƿehloò 6,042 ekiyèè haƿhda xàekw'ee (co2e) sù ek'èt'à nìt'ƿ.

Łek'èhots'èàa eyts'q EMAB

2021 k'e EAAR godƿ gƿtƿè sù GNWT-ENR (dù GNWT-ECC) gha k'àowodeè t'òwhedaa wegħa nezƿ at'è, eyù sù Toyota Zaà 21, 2022 k'e agòdzà. K'àowodeè t'òwhedaa wenƿht'è 2021 Dè Gomqò Gòqòq xè Nàowodeè Hòƿ Xotaat'e Wenƿht'è Hòèè yegħ ƿt'è sù wexèht'e nƿht'è Appendix 1 k'e dek'eèht'è.

EMAB eyts'q Diavik etets'q gƿt'è sù nƿhts' ƿ xè dàgòht'e weghqò geda eyts'q wek'e nàowo gehtsƿ hanì ts'qòhk'e agedù, eyts'q dè wexoedù weghàlada, eyts'q tƿts'aàdù gík'èhodù, eyts'q godƿ dek'eèht'è wexoedù, nƿhts' ƿ ƿè xàƿaa nitrogen dioxide (NO2) eyts'q asù eyù-le gwia ghq etets'q gƿt'è.

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
ECC	Environment and Climate Change (Formerly 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
SARA	Species at Risk Act
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'èezhii 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	Zone of Influence

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 2022. Complete copies of the numerous reports that Diavik submits each year can be found in the EMAB library (at their office, or [on-line library](#)) or the Wek'èezhìi Land and Water Board [public registry](#).

Operational Plans

The Diavik diamond mine was in its twentieth year of operations during 2022. Underground mining from both the A154 and A418 pipes occurred in 2022 and mining of the A418 pipe was ceased at the end of 2022. 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 2022. The table below shows a timeline of Diavik's mine plan, which shows mining activities planned for the next several years and closure planned in 2026.

Kimberlite Pipe	Access	Mine Status (2022)
A154 North	<ul style="list-style-type: none"> • A154 open pit • A154 Underground (common decline with A418) 	<ul style="list-style-type: none"> • Open pit mining completed Q3 2008 • Underground mining active
A154 South	<ul style="list-style-type: none"> • A154 open pit • A154 Underground (common decline with A418) 	<ul style="list-style-type: none"> • Open pit mining completed Q3 2010 • Underground mining active
A418	<ul style="list-style-type: none"> • A418 open pit • A418 Underground (common decline with A154) 	<ul style="list-style-type: none"> • Open pit mining completed Q3 2012 • Underground mining ceased Q4 2022
A21	<ul style="list-style-type: none"> • A21 open pit • A21 Underground 	<ul style="list-style-type: none"> • Open pit mining active • Q4 2023



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	Introduction, 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	Introduction, 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/Tłıchǫ, Chipewyan, and Inuinnaqtun using appropriate media	Plain English executive summary translated into Dogrib/Tłıchǫ, Chipewyan, and Inuinnaqtun	Appendix III-VI

2. Environmental Programs and Plans - 2022

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 2022 are identified in Table 2 (the table also includes commentary on plan updates as of May 2023). 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 2022.

Table 2. Current Management & Operations Plans for the Diavik Mine*

Plan & Version Number	Purpose	Updated in 2022 (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.	No	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) v11	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 v11) in December 2022 to incorporate changes related to the A21 Underground project.
Interim Closure & Reclamation Plan (ICRP) v4.1	Outlines 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.	No	Version 4.1 submitted in Dec 2019 to WLWB. The WLWB approved of Version 4.1 in June 2021 with further Direction for the Final Closure & Reclamation Plan.

Plan & Version Number	Purpose	Updated in 2022 (Y/N)	Updates/ Comments
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), v24	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.	Yes	Updated and submitted to WLWB in December 2022.
Water Management Plan, v16	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	Updated in September 2022 and approved in by WLWB in December 2022. The Water Management Plan v16 addresses A21 Underground-specific water management requirements in the WLWB's September 2020, Reasons for Decision regarding the A21 Underground project.
Waste Management Plan, v5.1 (includes Incinerator v5.1, Hydrocarbon Impacted Materials v5.1, Solid Waste & Landfill v5.1, Dust Management v5.1)	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	Submitted (WMP v5.0) to WLWB in September 2022 and approved by WLWB (v5.1) in December 2022. WMP v5.1 incorporates changes related to the A21 Underground project.

Plan & Version Number	Purpose	Updated in 2022 (Y/N)	Updates/ Comments
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, v3.1	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.	No	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.
PKMW Engagement Plan v1.1	Developed to inform DDMI's engagement with potentially affected Indigenous Groups during the implementation of the PKMW Project to ensure that water is safe for people, aquatic life, wildlife, and suitable for cultural use.	Yes	DDMI submitted the PKMW Engagement Plan Version 1 to WLWB in September 2021. The WLWB approved Version 1 in November 2021. DDMI submitted Version 1.1 of the plan in February 2022 addressing Directives. The WLWB approved Version 1.1 in March 2022.
Processed Kimberlite Management Plan, v7	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 PK Management Plan 7.0 to WLWB for review in July 2022. Version 7 Plan updates reflected the operations phase of the PKMW and WLWB's June 8, 2021 issuance of an Amended Water Licence for PKMW. In December 2022, WLWB approved the PK Management Plan v7.0
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.	No	WLWB approved updates in March 2020 to remove significant 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.

Plan & Version Number	Purpose	Updated in 2022 (Y/N)	Updates/ Comments
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	DDMI submitted a revised Tier 3 WMMP in October 2022 for approval. The revised WMMP reflects changes made by DDMI in response to the GNWT-ECC July 15, 2022 conditional approval of the WMMP submitted by DDMI in December 2021. The updated WMMP has yet to be approved by GNWT-ECC.
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	DDMI has discontinued sampling and reporting on Total Suspended Solids (TSP) monitoring 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.
Final Closure and Reclamation Plan (Version 1)	Final closure designs for all major components of the mine and after-closure monitoring programs with closure criteria and performance assessment processes. This report builds on the last two decades of updates and improvements to the Interim Closure and Reclamation Plan (ICRP) and addresses WLWB directives.	Yes	Submitted to the WLWB on October 13, 2022. Currently undergoing a public review at time of 2022 EAAR submission.

*Management Plan status reflects updates up to May 2023.

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 2022 is outlined in Table 3.

Table 3. Monitoring Programs for the Diavik Mine

Monitoring Program	Purpose	Completed in 2022 (Y/N)	Reporting Frequency/ Comments
Wildlife			
Caribou Behaviour Observations	If/how caribou behaviour changes in relation to distance from mine	Y	Annually
Aerial Caribou Surveys	Zone of Influence of mining activities in the LDG region	N	Discontinued ¹
Caribou Road Surveys	Effectiveness of mitigation measures	Y	Annually, initiated based on collar data or reported sightings
Wolverine Track Survey	Wolverine presence in the area of the mine	Y	Annually
Wolverine DNA	Wolverine numbers in the Lac de Gras (LDG) area	N	Discontinued ²
Grizzly Bear DNA	Bear numbers in the LDG area	N	Discontinued ³
Raptor Survey	Regional estimate of number of nests with birds in them and how many chicks are alive	N	Completed every 5 years with GNWT & other mines; last survey in 2020; next survey to be conducted in 2025
Wildlife Habitat Loss	Track habitat loss due to mine development; total loss and preferred habitats for individual species	Y	Annually
Building Inspections	Survey mine buildings and pit walls to identify bird nests and/or wildlife use	Y	Annually
Waste Inspections	Monitor waste disposal that may attract animals	Y	Annually
Wildlife Presence	Track wildlife observations and numbers on the mine site	Y	Annually
Wildlife Mortality & Injury	Track any wildlife deaths or injuries associated with mine operations	Y	Annually
Water			
Mine Site Water Quality	Test water against Water Licence limits at a set frequency (Surveillance Network Program, SNP)	Y	As outlined in Water Licence

¹ See “Caribou” section under “Wildlife” in section 3 for more information

² See “Wolverine” section under “Wildlife” in section 3 for more information

³ See “Grizzly Bear” section under “Wildlife” in section 3 for more information

Monitoring Program	Purpose	Completed in 2022 (Y/N)	Reporting Frequency/ Comments
Lake Water Quality	Changes to water quality in LDG over time (part of Aquatic Effects Monitoring Program, AEMP)	Y	Annually
Nutrients, small Plants & Bugs in Water	Changes to nutrients, plants and bugs that live in the water column, over time (part of AEMP)	Y	Annually
Lake Sediments	Changes to sediment quality in LDG over time (part of AEMP)	Y	Completed every 3 years; last sampled in 2022
Lake Bottom Bugs	Changes to number and type of bugs that live on the lake bottom, over time (part of AEMP)	Y	Completed every 3 years; last sampled in 2022
Large Bodied Fish Health	Fish health tests through palatability and/or tissue chemistry	Y	AEMP Traditional Knowledge Study has been run on a 3-years cycle, next scheduled in 2024. Lake Trout study started in 2022 following up on observations from the 2021 AEMP TK Study.
Small Bodied Fish Health (Slimy Sculpin)	Fish health tests through tissue chemistry	Y	Completed every 3 years; last sampled in 2022
Water Quantity	Measure levels and sources of water used, added or moved on site	Y	Annually
Air Quality, Dust & Vegetation			
Dust Deposition	Amount and chemistry of dust collected in dust gauges and on snow, close to and far from the mine	Y	Annually
Meteorological	Weather trends and influence on water balance and dust deposition	Y	Annually
Vegetation Plots	Changes to type and amount of plants over time, near and far from the mine	N	Completed every 3 or 5 years; last completed in 2021; next scheduled in 2024
Lichen Study	Metal levels in lichen and soil, near and far from the mine; included health assessment for caribou consumption	N	Completed every 3 or 5 years; last completed in 2021; next scheduled in 2024

Aquatic Effects (Lake Water Quality & Fish Health)

The AEMP is designed to measure short- and long-term changes in Lac de Gras. Sampling efforts focus 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 2022 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).

Diavik performs the AEMP program annually, however, every three years, the program is upgraded to a comprehensive program – a comprehensive program entails all the same measurements as the prior two years, as well as additional sampling parameters such as lake sediments, Benthic Invertebrates, and phytoplankton taxonomy. The purpose of a comprehensive program is to assess additional parameters to determine whether treated mine water put back into Lac de Gras has caused changes over time. In a comprehensive program, 39 locations are sampled, while in an interim year, 26 locations are sampled. 2022 encompassed a comprehensive program.

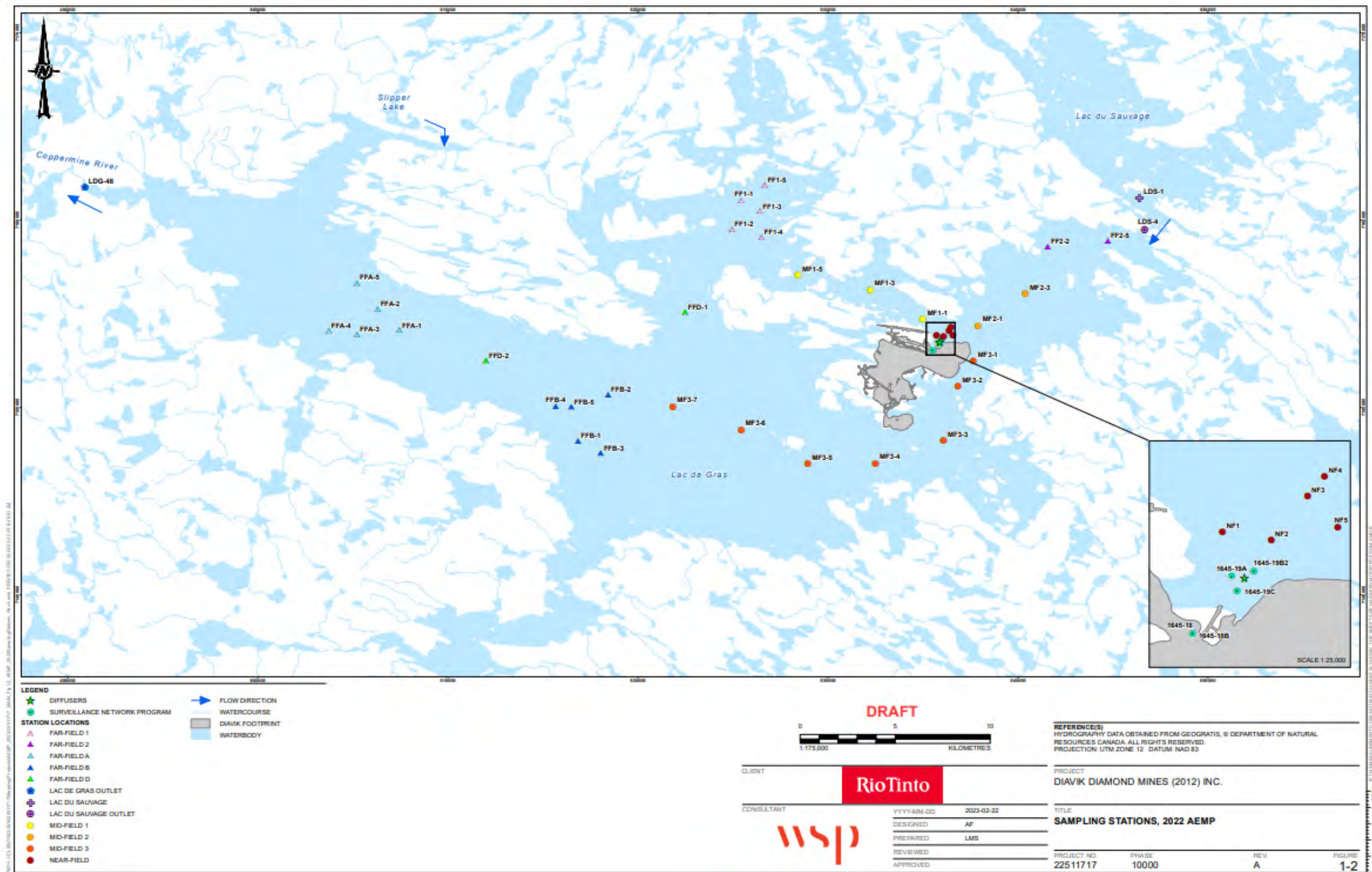


Figure 2. 2022 AEMP sample locations (comprehensive program).

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). Dust 11 and 12 are located on the south-westernmost and westernmost edges of East Island, respectively, and they provided improved coverage for the dust monitoring program during the expansion of the mine footprint from 2018 onwards due to A21 pit development. 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 are compared to the Alberta Ambient Air Quality Objectives for dustfall for residential and non-residential areas. This approach is used by some mines in the Northwest Territories (NWT) for comparison purposes only, as there are no air quality standards or objectives for the NWT in 2022. In 2022, results from monitoring were compared to the aforementioned Alberta Ambient Air Quality Objectives.

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.

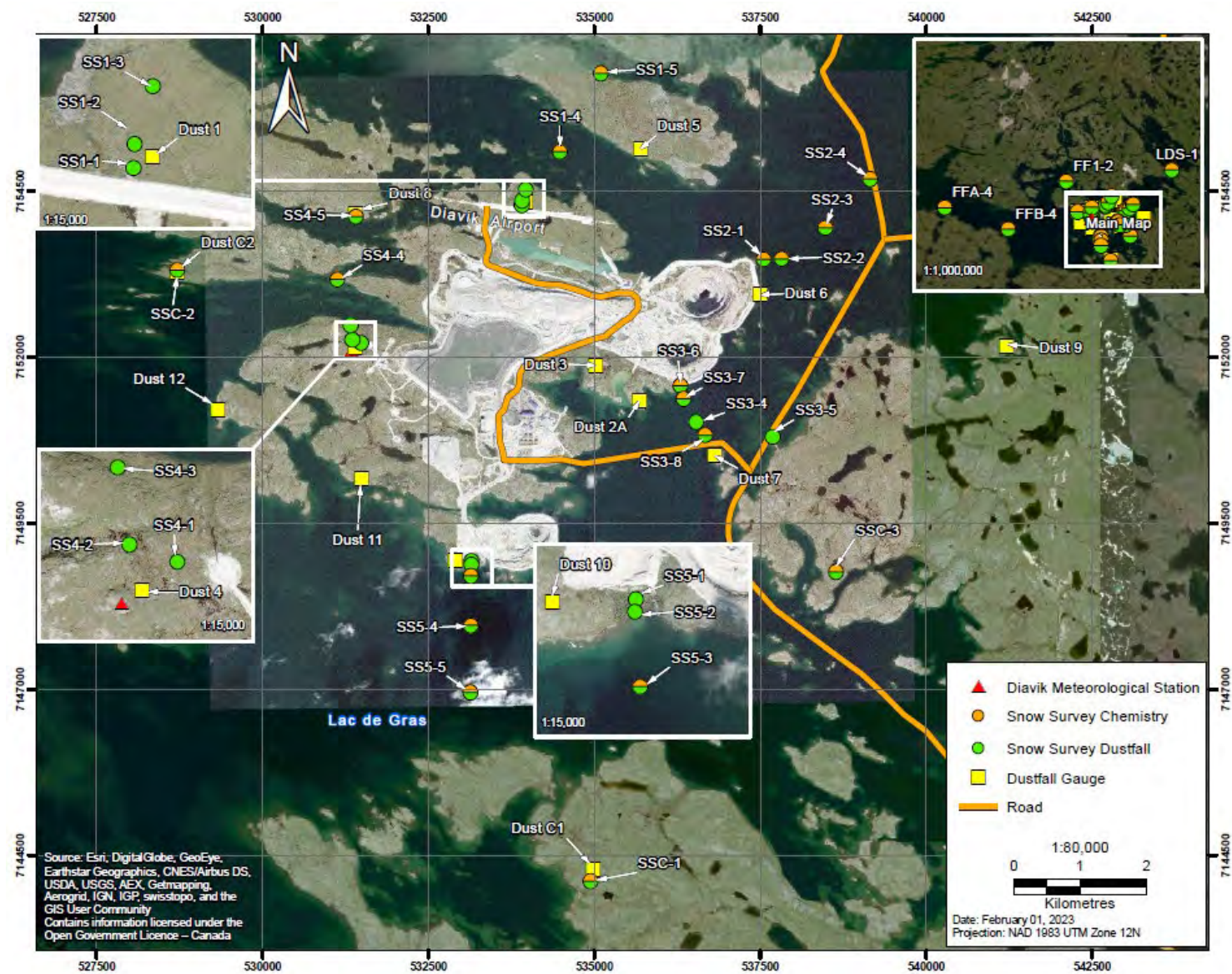


Figure 3. 2022 Air quality sample locations – dust and snow surveys

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 (Annex 1 of WL2015-0001). 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). Active SNP Stations at the Diavik mine site are shown in Figure 4.

Dike and Dam Seepage Monitoring 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 external receiving environment). Detailed inspections are documented weekly on all water retention structures. Daily inspections are completed on areas of geotechnical interest. The dikes and dams are designed to hold back water; however, some seepage (leaking water) through these structures may occur. The purpose of the surveys is to check areas for potential leaks so that Diavik can take appropriate measures to stop the water from reaching the external receiving environment. The monitoring includes regular inspections of the dam and dike structures and if seepage is observed reaching the external receiving environment, DDMI records the amount of water and collects water samples for the SNP requirements in the Water Licence, for analysis.

The Processed Kimberlite Containment Facility (PKCF) does not completely freeze in the winter, so water can move within the dam all year round. Although, DDMI expects that the PKCF will start to dry out over time when the fine processed kimberlite (a major source input to the PKCF) begins to report to the A418 open pit and mine workings (expected to start in early 2023).

The PKCF has four SNP water interception (capture) well locations surrounding the PKCF which are sampled monthly, and are used to intercept, monitor, and manage process water that collects in the PKCF. The PKCF is also surrounded by numerous SNP collection ponds that can also intercept water before it reaches the receiving environment. In the winter, pumping volumes from the interception wells is low and some wells remain frozen throughout the year.

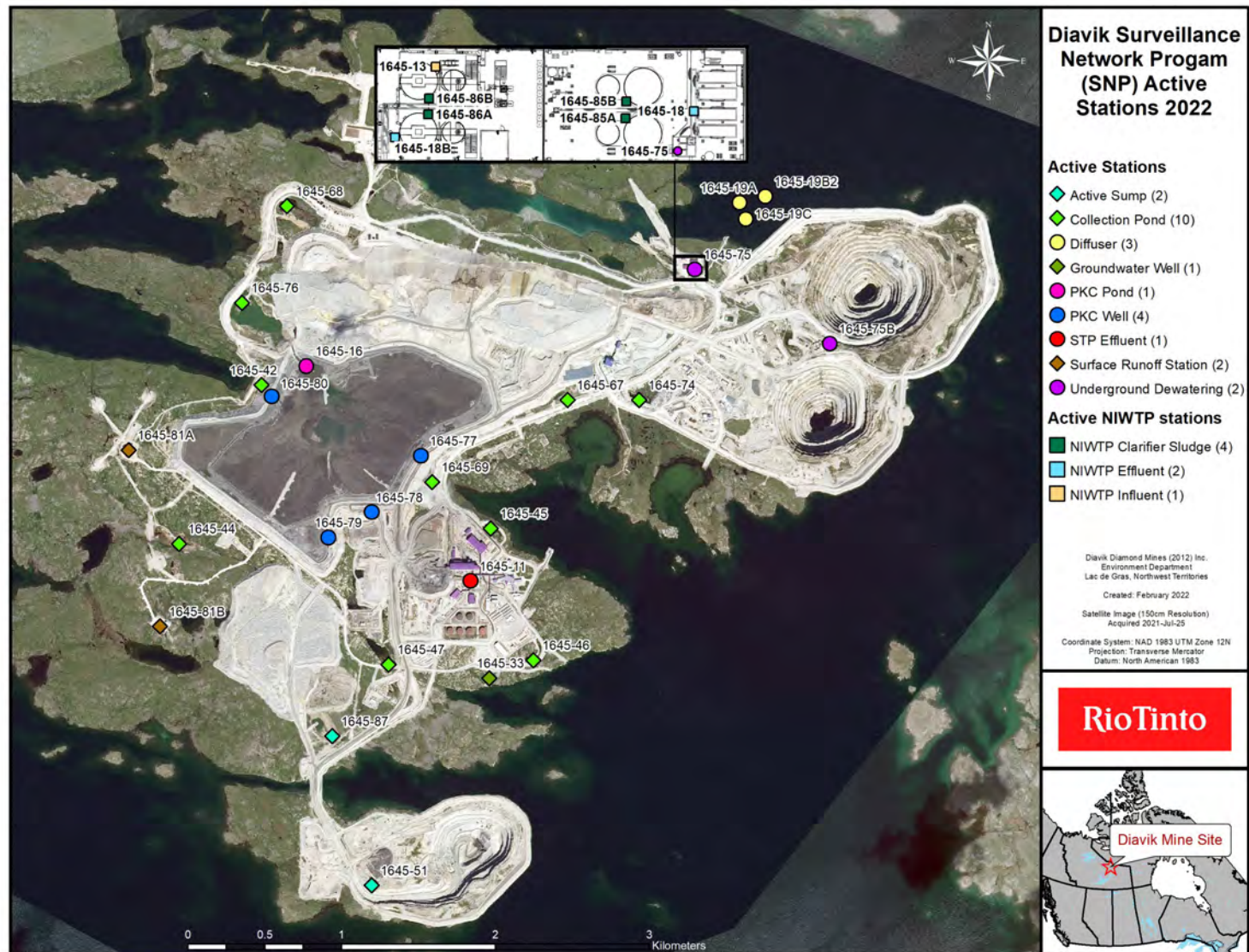


Figure 4. 2022 Surveillance Network Program (SNP) sample locations

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.

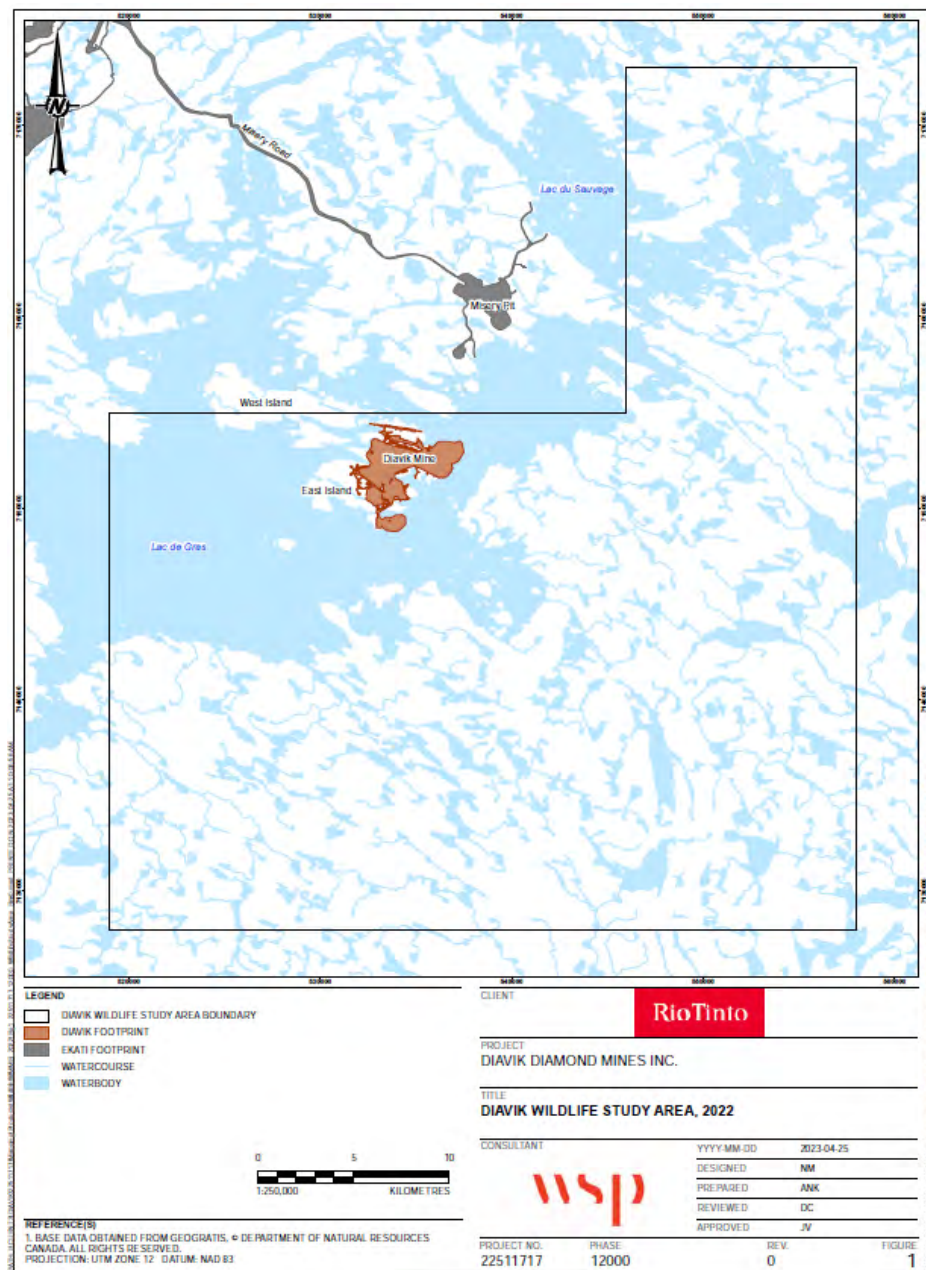


Figure 5. Regional wildlife study area for the Diavik Mine

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 of degree of change) 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 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.

2022 Observations:

Sixteen water quality parameters 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 (Table 4). Of the sixteen water quality parameters, ten also triggered Action Level 2. This is also an early warning indicator. The required action when a water quality parameter triggers Action Level 2 is to establish an AEMP Effects Benchmark for each triggered parameter if one does not already exist. All eleven parameters that triggered Action Level 2 have existing Effects Benchmarks. None of the water quality parameters measured triggered Action Level 3.

One parameter for eutrophication, chlorophyll *a*, triggered an Action Level 2.

Table 4. Action Levels for 2022 AEMP

Component	Variable	Action Level
Water Quality	Total Dissolved Solids (calculated) - Ice-Cover and Open-Water	2
	Turbidity - lab - Ice-Cover	1
	Calcium - Ice-Cover and Open-Water	2
	Chloride - Ice-Cover and Open-Water	2
	Potassium - Open-water	1
	Sodium - Ice-Cover and Open-Water	2
	Sulphate - Ice-Cover and Open-Water	2
	Ammonia - Open-Water	1
	Nitrate - Ice-cover and Open-Water	2
	Antimony - Ice-cover and Open-water	2
	Barium - Ice-Cover	1
	Molybdenum - Ice-Cover and Open-Water	2
	Silicon - Ice-Cover and Open-water	1
	Strontium - Ice-Cover and Open-Water	1
	Tin - Ice-cover	2
	Uranium - Ice-Cover and Open-Water	2
Eutrophication	Chlorophyll a	2
Sediment Chemistry	Total strontium	1
	Total uranium	1
	Total bismuth	2
	Total molybdenum	2
Benthic Invertebrates	<i>Stictochironomus</i> density	1

Effluent water quality samples in 2022 indicated that the effluent discharged to Lac de Gras by Diavik was not toxic. The levels of nearly all the regulated water chemistry variables were below the relevant Effects Benchmarks for the protection of aquatic life and drinking water in 2022. In several cases, identified exceedances were attributable to natural conditions in Lac de Gras.

Similar to results from previous years, results from the 2022 water quality analysis indicated that effluent is the main source of Mine effects on Lac de Gras, with a negligible contribution from dust deposition.

The mine is having a nutrient enrichment effect in Lac de Gras, as evidenced by greater nutrient and chlorophyll *a* concentrations, and zooplankton biomass in the lake close to the mine. Results from 2022 are consistent with the EA prediction of greater concentration of nutrients, particularly phosphorus from the Mine effluent discharge, resulting in an increase in primary productivity in the lake. This was the second year that Action Levels have been evaluated for total phosphorus but unlike the previous year, total phosphorus did not trigger an Action Level in 2022.

Mine-related effects on bottom sediments in areas of Lac De Gras near the mine were identified for some metals and nutrients; none of which had concentrations which triggered an Action Level higher than 2. Total strontium and total uranium triggered Action Level 1, which represents an early warning change. Total Bismuth triggered Action Level 2, however, based on the lack of toxicological guidelines for bismuth for surface waters, lack of toxicity data for sediments, and the relatively low aquatic toxicity of bismuth in the available literature, bismuth is not considered to be a constituent of concern in Lac de Gras sediments. Total molybdenum also triggered Action Level 2, and requires the development of an effects benchmark. As such, a Response Plan has been prepared for total molybdenum.

No Action Levels were triggered for plankton in 2022 and results for plankton continue to be consistent with nutrient enrichment effects occurring in Lac de Gras.

Action Level 1, which represents an early warning change and does not require a management plan, for toxicological impairment was triggered for the benthic invertebrate community based on lower *Stictochironomus* density near the mine in comparison to reference conditions. *Stictochironomus* was a minor taxon in 2022, with highly variable density among stations. Results for other benthic community variables were not consistent with an effluent-related toxicological effect on benthic invertebrates in Lac de Gras.

The 2022 slimy sculpin study showed the sculpin fish were healthy, in good physical condition, and reproducing. Some fish showed signs of parasites, specifically tapeworms, varied among areas, with a greater prevalence closer to the Mine area compared to further from the Mine. However, parasitism nearer to the Mine decreased relative to 2019. Fish tissue concentrations of lead, strontium, and uranium were considerably greater closer to the Mine compared to further from the Mine, with strontium and uranium exceeding the normal range. Compared to previous years, tissue concentrations of lead and strontium in fish sampled near the Mine increased from 2019 to 2022; however, the magnitudes of difference relative to the further areas from the Mine have remained similar since 2013. For uranium, tissue concentrations closer to the Mine remain elevated compared to further from the Mine but have steadily declined since 2013.

In 2022, nearly all concentrations (>99%) of variables in samples measured at the mixing zone boundary (where mine effluent is discharged to the lake) were within the relevant AEMP water quality Effects Benchmark that are based on the Canadian Water Drinking Quality Guidelines for the protection of aquatic life and drinking water.

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 0), 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, while lower in comparison to 2019, is happening in Lac de Gras. However, the severity with respect to ecological integrity of Lac de Gras associated with these changes was low in 2022 and indicated a lower toxicological impairment in comparison to 2019. Ultimately, there is no indication of a toxic effect in Lac de Gras from mine operations. The WOE results for the 2022 AEMP are presented in the below table.

Table 5. Weight-of-Evidence Results, 2022 AEMP

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

2021 Observations:

Twenty water quality parameters 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 (Table 4). Of the twenty water quality parameters, nine also triggered Action Level 2. This is also an early warning indicator, which triggers a requirement to develop an AEMP Effects Benchmark (threshold criteria). None of the water quality parameters measured triggered Action Level 3, and all the parameters that triggered Action Level 2 had water quality effects benchmarks previously established.

Table 6. Action Levels for 2021 AEMP

Component	Variable	Action Level
Water Quality	Total Dissolved Solids (calculated) - Ice-Cover and Open-Water	2
	Turbidity - Iab - Ice-Cover	1
	Calcium - Ice-Cover and Open-Water	1
	Chloride - Ice-Cover and Open-Water	2
	Magnesium - Ice-Cover	1
	Potassium - Ice-Cover	1
	Sodium - Ice-Cover and Open-Water	2
	Sulphate - Ice-Cover and Open-Water	2
	Ammonia - Open-Water	1
	Nitrate - Ice-cover and Open-Water	2
	Aluminum - Ice-Cover	1
	Antimony - Ice-cover	1
	Barium - Ice-Cover	1
	Chromium - Ice-Cover	1
	Copper - Ice-Cover	1
	Manganese - Ice-Cover	1
	Molybdenum - Ice-Cover and Open-Water	2
	Silicon - Ice-Cover	2
	Strontium - Ice-Cover and Open-Water	2
	Uranium - Ice-Cover and Open-Water	2
Eutrophication	Chlorophyll <i>a</i>	2
	Total Phosphorus	1

Effluent water quality samples in 2021 indicated that mine contact water from the North Inlet Water Treatment to Lac de Gras was not toxic. The levels of all regulated water chemistry variables were below effects benchmarks for the protection of aquatic life and drinking water in 2021.

The water quality analysis looked at the possibility that dust was affecting water quality in the lake and determined that mine effluent water is the primary contributor to mine-related lake effects, with a negligible contribution from dust deposition. The AEMP report recommended that the analysis used to determine potential effects from dust be discontinued in future AEMPs, since the program provides sufficient coverage to determine effects on the lake from all mine sources, including dustfall.

The mine is having a nutrient enrichment effect on the lake, as is clear by greater nutrient and chlorophyll *a* concentrations, and zooplankton biomass in the lake close to the mine. Lower total phosphorous loads measured in the mine effluent corresponded with lower phosphorous levels in the lake in 2021. Results are consistent with the EA prediction of greater concentrations of nutrients,

particularly phosphorous in the mine discharge, resulting in an increase in primary productivity in the lake.

There was no Weight of Evidence (WOE) assessment required in 2021. The next WOE is scheduled for the 2022 AEMP.2020 Observations:

Twenty-three 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 5 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 7. Action Levels for 2020 AEMP

Component	Variable	Action Level
Water Quality	Total Dissolved Solids (calculated) - Ice-Cover and Open-Water	2
	Total Suspended Solids - Open-Water	1
	Turbidity – lab - Ice-Cover	1
	Chloride - Ice-Cover and Open-Water	2
	Sulphate - Ice-Cover	1
	Sulphate - Open-Water	2
	Ammonia - Open-Water	1
	Nitrate - Ice-cover and Open-Water	2
	Aluminum - Ice-Cover	1
	Antimony - Ice-cover and Open-Water	1
	Barium - Ice-Cover	1
	Calcium - Ice-Cover and Open-Water	1
	Chromium - Ice-Cover	1
	Copper - Ice-Cover	1
	Magnesium - Ice-Cover	1
	Molybdenum - Ice-Cover and Open-Water	2
	Potassium - Open-Water	1
	Silicon - Ice-Cover and Open-Water	1
	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 <i>a</i>	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 0%. 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 0), 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 non-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-evaluation 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 (values which are 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 a lake that hasn’t 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 (WOE) section of the AEMP combines the sections of the AEMP report that describe the quality of treated mine water, nutrient levels, lake bottom sediment quality, tiny plants and animals in the water, bugs and invertebrates that live on the lake bottom, and fish health. The WOE attempts to describe the overall health of the lake when all these things are considered together. Statistics were used to estimate how strong the evidence is for increasing nutrient levels or toxic effects occurring in Lac de Gras from 2007 to 2019 (Figure 6). It takes a significant amount of evidence to say confidently that changes to Lac de Gras are occurring, and that they are influenced by the mine. The WOE determined that it is likely that nutrient level increases in Lac de Gras overtime are related to mine effluent, and that there is very little evidence to say that there are toxic effects occurring. This analysis will next be completed as part of the 2020-2022 AEMP Re-evaluation report.

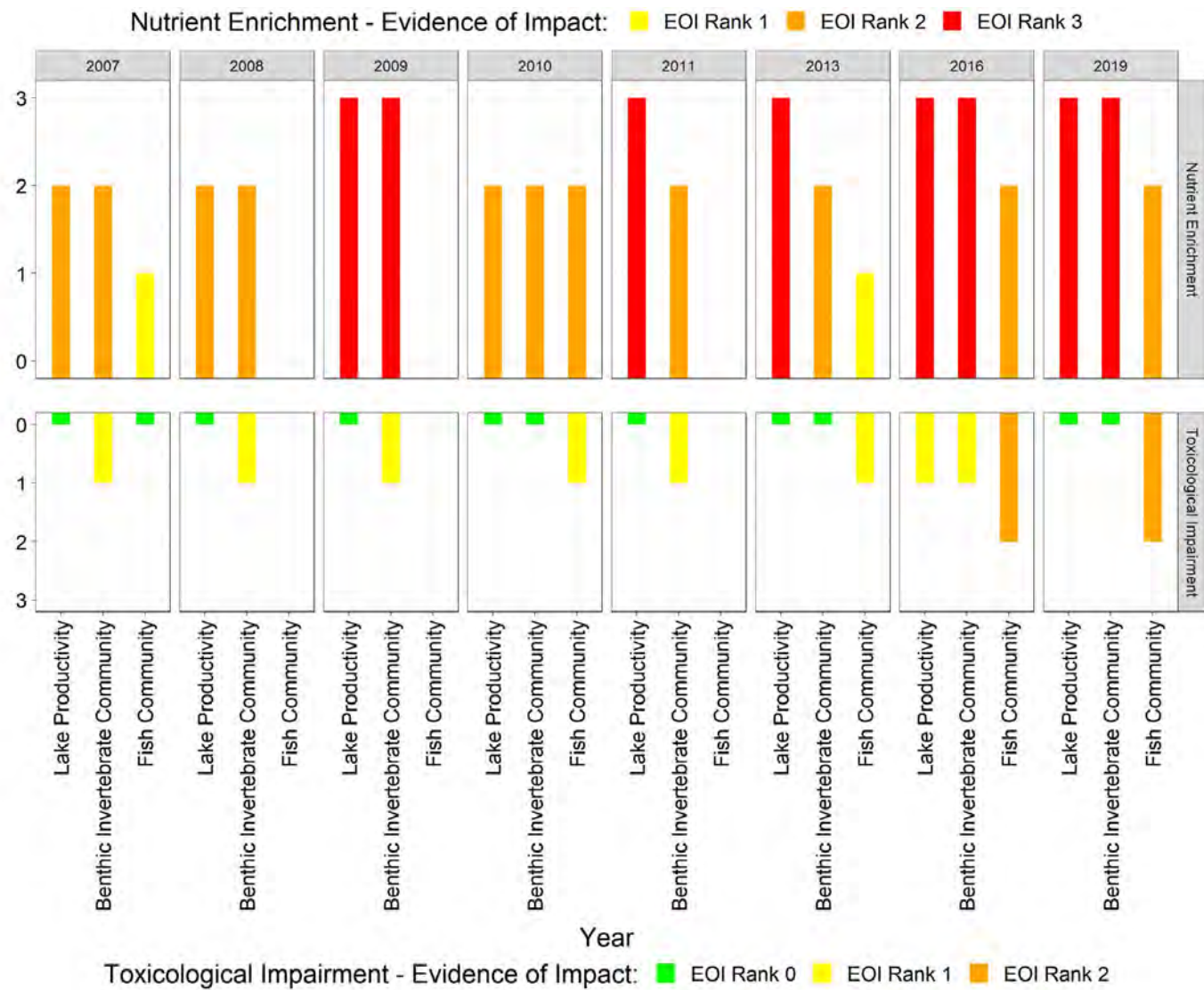


Figure 6. 2007 – 2019 weight of evidence summary

2019 Observations:

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

Eighteen 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 6 below). Regulated effluent parameters remained below the limits stated in the Water Licence.

Table 8. Action Levels for 2019 AEMP

Component	Variable	Action Level
Water Quality	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
	Sulphate - open water	2
	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
Sediment Quality	Total Bismuth	2
	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 0), 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 9. 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 hasn't 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.

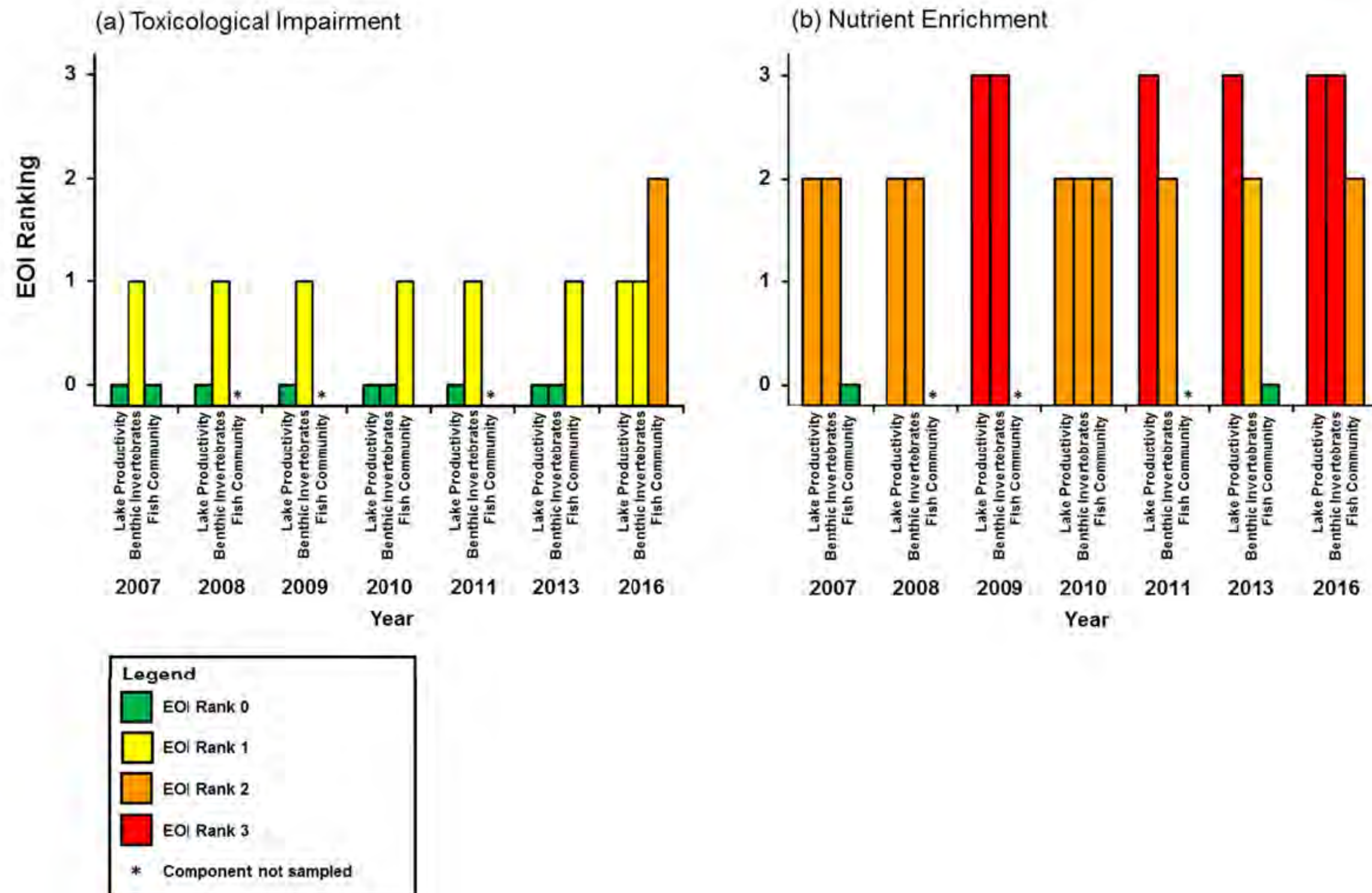
The plankton component of the AEMP evaluated whether there were any changes happening to the tiny plants and animals that live in the water in Lac de Gras. Changes in plankton can affect fish in the lake because fish eat them, and changes in plankton can happen before fish are affected. Differences in 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.



EOI = Evidence of Impact

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

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 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.

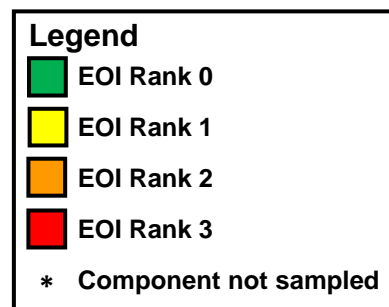
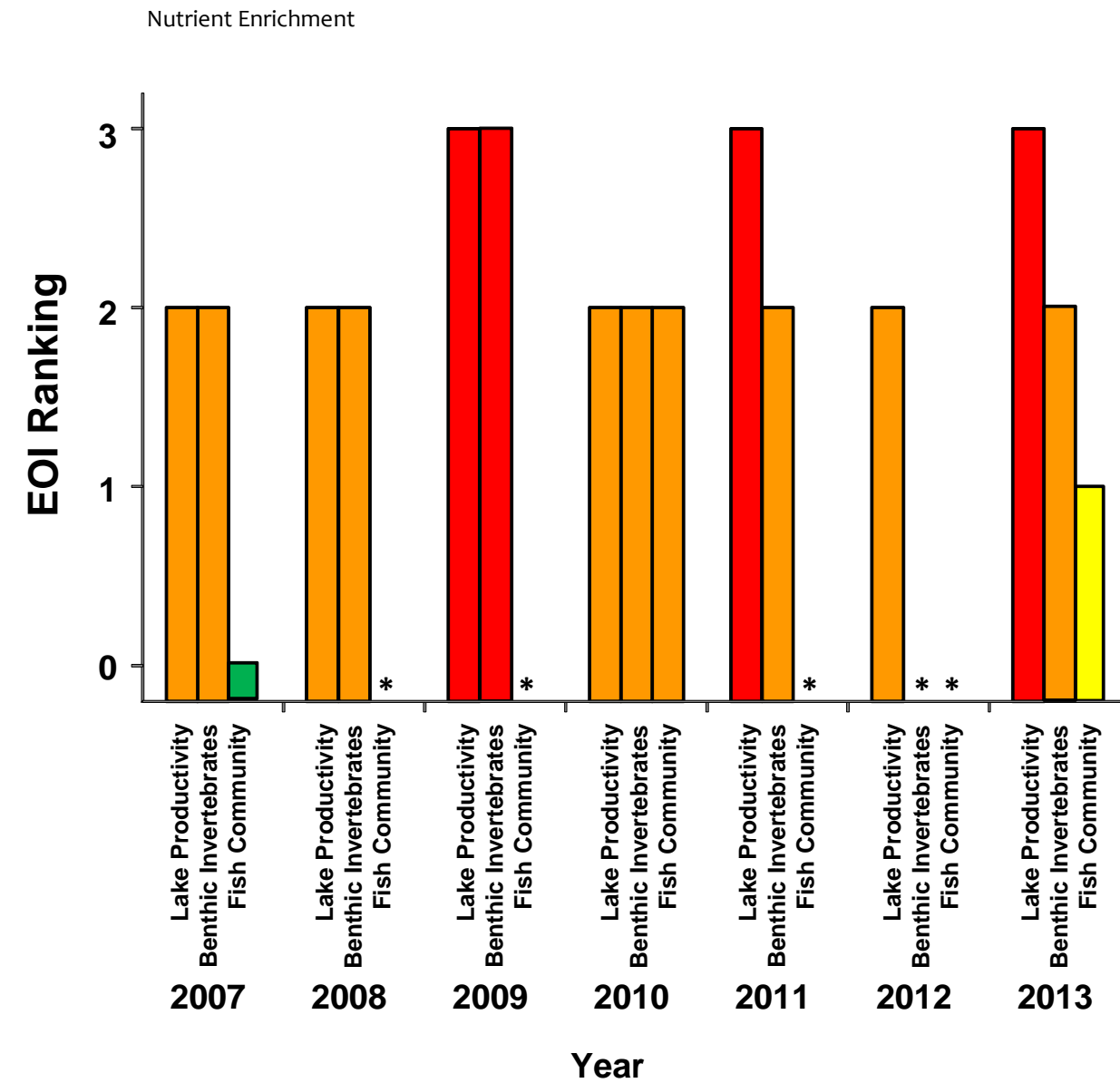
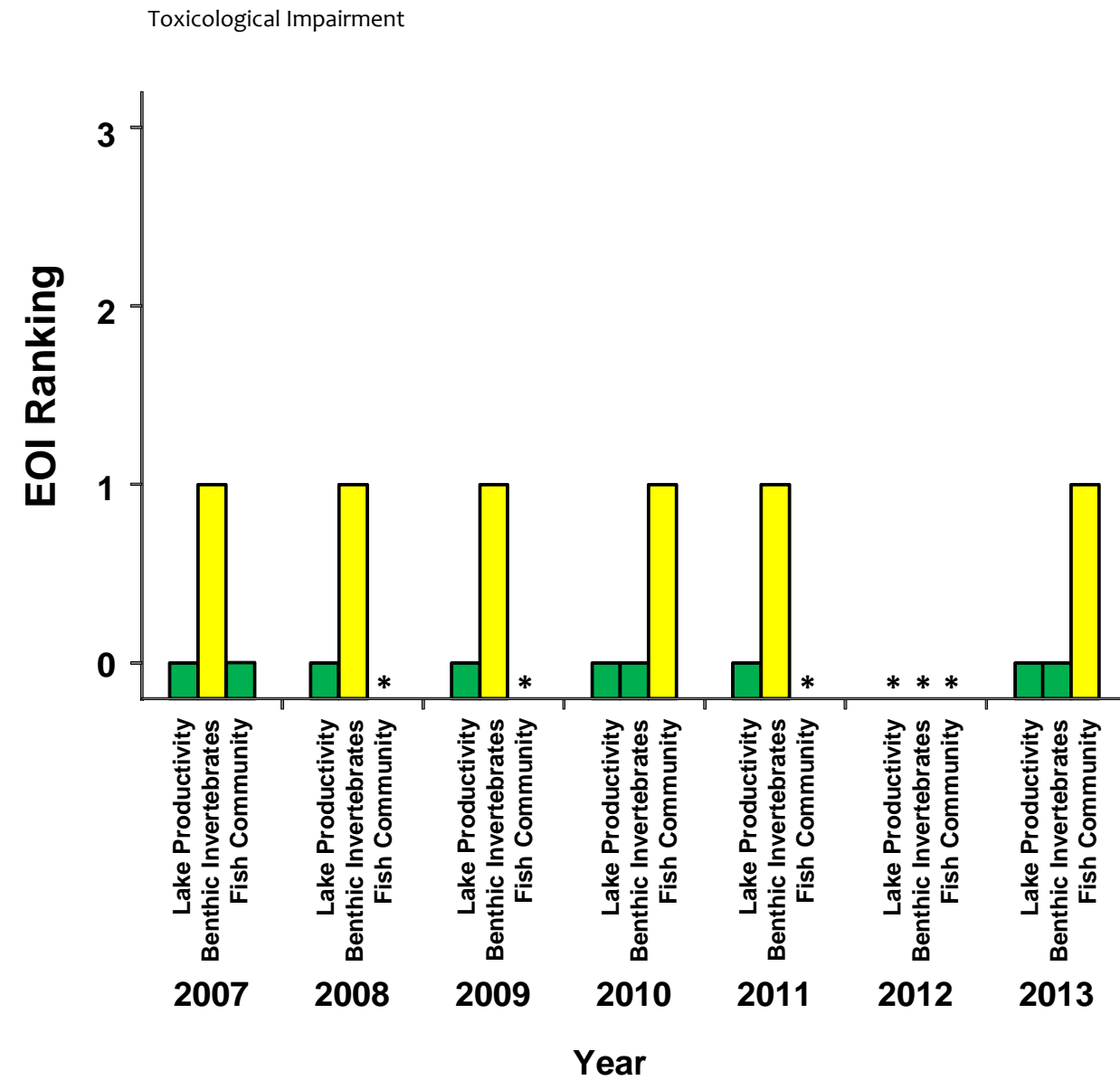


Figure 8. Overall Ranking of Effects (EOI = evidence of impact)

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 µg/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 10. 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. Early-warning/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 (60m), 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 (60m) 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 mid-field 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.

Fish

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, thirteen (13) 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 bioaccumulates 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 Camp

The AEMP TK Camp includes up to 2 Elders, 1 youth and interpretation as required for each of the PA organizations and is conducted every three (3) years, the next AEMP TK camp is scheduled for 2024.

In 2021, the AEMP TK Camp brought together Elders and Youth from 5 PA communities to test the health of water and fish in Lac de Gras. Community members and Diavik staff set 3 nets and caught 19 lake trout for analysis. During the dissection of the fish for tissue collection, some community members were concerned over the quantity of parasites in the bodies of the fish and palatability (taste tests) tests were not completed.

DDMI presented scientific fish and water quality results at a verification session in Yellowknife in December 2021 and provided a historical summary of prevalence of parasites in fish caught at previous years camps and information on the parasites found at the 2021 camp. The prevalence of parasites observed in 2021 was comparable to several years past. At the verification session, DDMI committed to conducting additional summer and winter Lake Trout sampling activities to assess fish health and parasites. The sampling effort started in 2022 with a summer collection and will be completed in 2023 with a winter collection and the results will be presented in the 2023 EAAR. DDMI will continue to work with the PA groups involved at the AEMP TK Camp on their feedback received to date.

Tissue samples collected for metals analysis showed that fish have normal levels of metals in their flesh. Two fish contained mercury levels slightly higher than the Health Canada Guideline (0.5mg/kg) (Figure 9). Of these two fish, one was the oldest caught at the camp, at 30 years old (based off of otolith ageing) and the other was suspected to be similar in age based off of size and weight but no otolith could be collected for LT 14 to confirm its age.

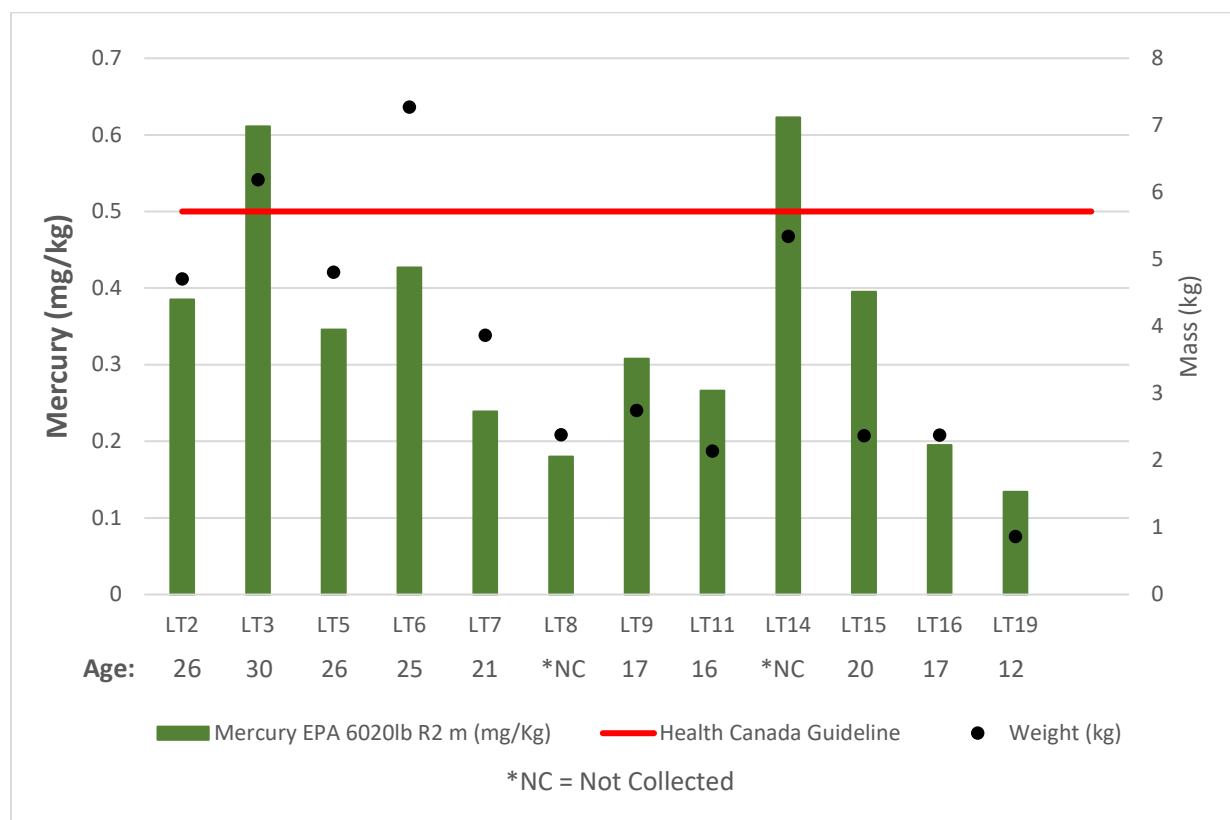


Figure 9. Mercury levels in fish caught at the 2021 TK Camp

The documentation of participants concerns over parasites and fish health can be found in the full report for the 2021 AEMP TK Camp on EMABs online library. (https://www.emab.ca/sites/default/files/2021_aemp_our_word_as_truth_report_v4.0.pdf)

At the 2018 TK Camp, 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 10)

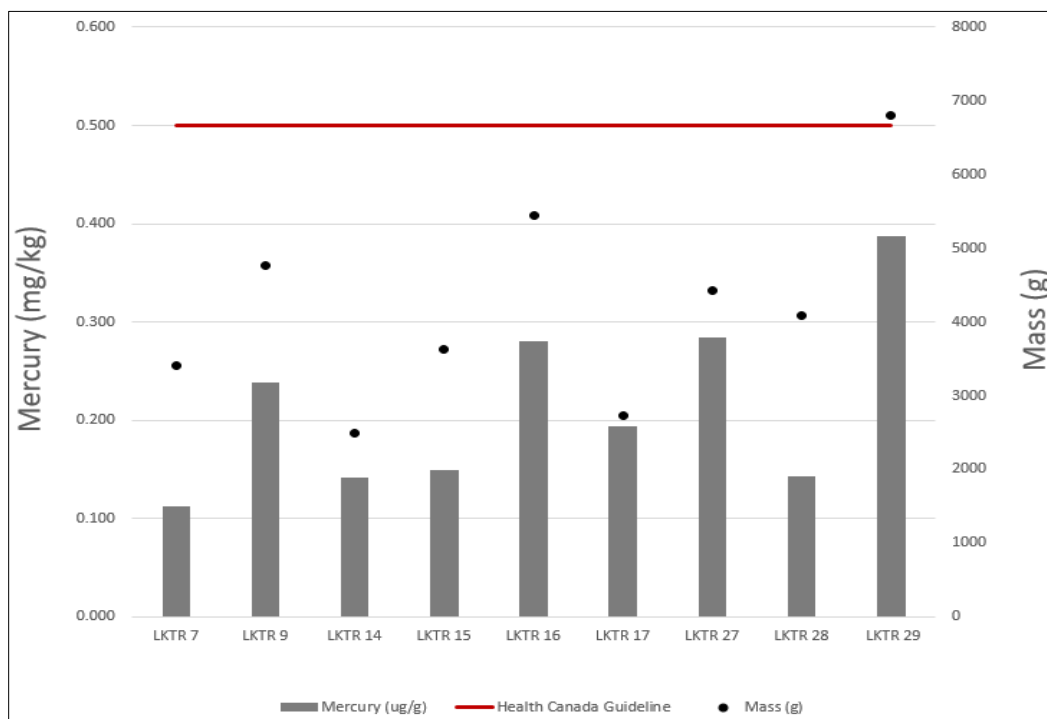


Figure 10. 2018 Lake Trout mercury levels (Hg), age, and weight

- 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 in 2015. 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 11).

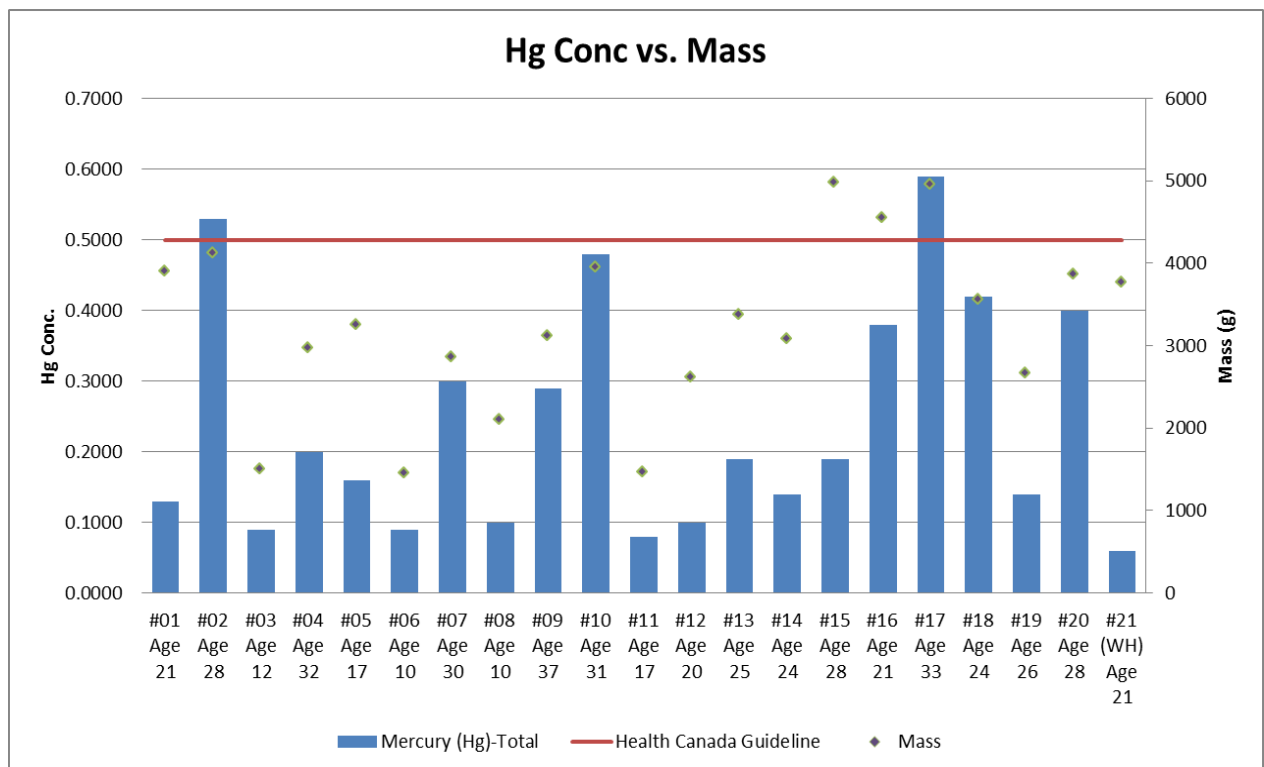


Figure 11. 2015 mercury (Hg) levels for fish tissue based on age and weight

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

- Slimy sculpin fish samples were collected in 2022. Both fish health and fish tissue were analyzed and it was determined that similar reproductive success and prevalence of internal and external abnormalities were noted among samples areas. The prevalence of parasites (i.e., tapeworms) varied among areas, with a greater proportion of infected fish observed nearer to site. However, the prevalence of parasites decreased relative to 2019. Slimy sculpin fish tissue concentrations had significantly greater concentrations of lead, strontium, and uranium nearer to site. When compared to previous years, tissue concentrations of lead and strontium increased from 2019; however, the magnitudes of difference relative to the areas further from the Mine remained similar over time. For uranium, tissue concentrations were elevated nearer to the Mine area, but have been steadily declining since 2013. Due to the low magnitude of

effects observed in fish health, it is unlikely elevated concentrations of these metals have contributed to a toxicity response for fish. In 2022, an Action Level 1 was triggered for fish health due to differences observed in the condition of juvenile fish and in female gonad weight between the areas near the Mine and the reference conditions. A similar Action Level trigger was identified in previous years and was further evaluated in the 2014 to 2019 AEMP Response Plan – Fish (Version 2.0), which concluded that the observed differences were inconsistent with a Mine effect and were likely driven by localized habitat variation among study areas.

- 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 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 2022, no seepage was identified downstream or outside of runoff collection areas. This included seepage from waste rock storage areas, water retention dikes and dams, or other rock stockpiles or areas constructed with mined/quarried rock.

In 2021, 3 instances of seepage were identified and are described below.

On May 20, 2021 ponded water at the base of the SCRP-WRSA was observed flowing into a small interior lake and flowed intermittently over 28 days. Short-term measures including a pump and temporary pipeline were put in place to redirect the ponded water towards drainage-controlled areas. Samples were collected every day flow was observed, and flow rates were measured to estimate total discharge. Water was last seen flowing on Jun 16, 2021, and approximately 3,436 m³ of water flowed from the ponded water to the small interior lake. The water quality sample results were below EQC, and did not trigger an Action Level 1. The natural depression at the base of the WRSA-SCRP was infilled in July, 2021 to remove the potential for standing water adjacent to the rock pile. This will effectively reduce the possibility of a recurrence of this event. DDMI will continue monitoring the area for seepage during ice-free periods.

On November 7, 2021 Geotechnical crews conducting routine inspections discovered seepage flowing from the west dam of the PKCF onto the tundra. The seepage bypassed the existing trench along the

base of the west dam which redirects seepage to collection pond 4. DDMI collected samples each day that flow to the tundra was observed. Water quality samples were below EQC and did not trigger an action level 1 response. On November 8th, DDMI installed a pump system to intercept the seepage and redirect it to pond 4. It is conservatively estimated that 213 m³ flowed to the tundra. On November 19, DDMI began construction of a till berm on the downstream side of the existing trench, and installed a culvert to improve the flow of water to pond 4. This construction is an effective long-term strategy to avoid this seepage event occurring in the future.

On May 20, 2021 during spring snowmelt, flowing water was observed at seepage location 6 west of the A21 pit. The flow was sampled the same day, and water quality results were below EQCs and did not trigger an Action Level 1 response. This flow reported directly to the A21 sump which is pumped to the North Inlet, so it did not impact the receiving environment. No follow-up actions were required.

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.

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 2022 (Figure 12). Diavik recycles water from the Processed Kimberlite Containment Facility and North Inlet as much as possible in order to reduce the amount of fresh water needed; in 2022, this amounted to 2.7 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 844,285 m³ in 2022. 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.

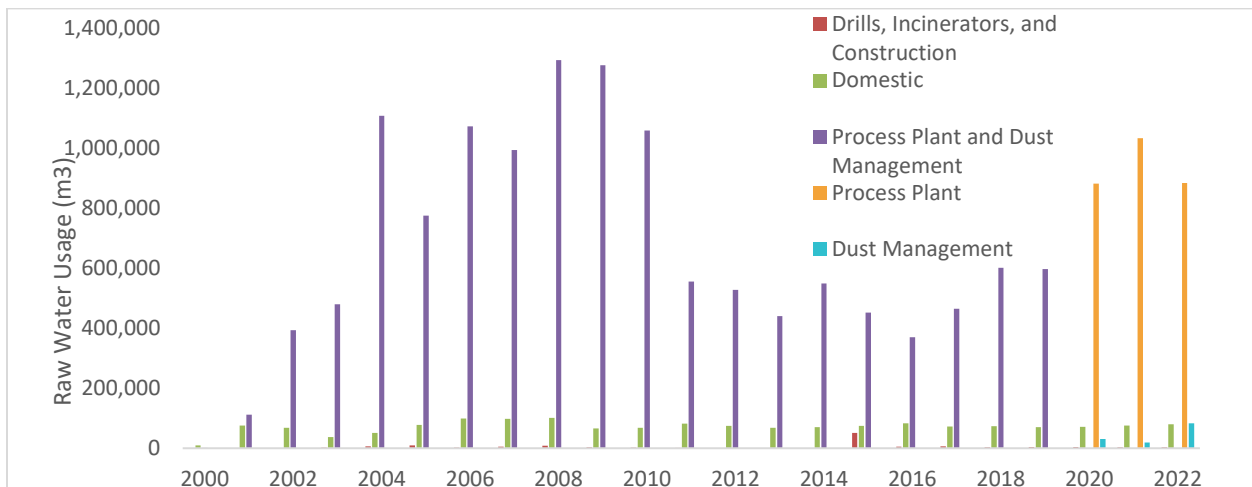


Figure 12. Freshwater use volumes from 2000-2022

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 Objectives (used for comparison) and Total Suspended Solids (TSP) levels have generally remained below NWT Guidelines.

- **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 was not a valuable component of the air quality monitoring initiatives at the Diavik mine. Diavik found that in the four years of TSP data collection (2013-2018), there were only three exceedances of the GNWT-ECC daily average TSP guideline (120 ug/ m³). TSP was found to have limited applicability to the EAQMMP and AEMP because the primary pathway for fugitive dust to affect wildlife and plant health is through deposition on the land and water surface, which is not measurable with TSP, since TSP measures particles suspended in the area. Furthermore, TSP cannot be used as a tool to estimate dust deposition because the two measurements depend on different factors of dispersion and settlement and therefore, TSP does not provide an estimate of the potential effects on the receiving environment from fugitive dust in a meaningful way. The TSP results did not show a problematic level of TSP or any trends of TSP that would require adaptive management of the site. Visual identification of high-dust locations to determine when and where to apply mitigative actions (watering roadways and use of dust suppressant in approved areas) is the most successful and immediate form of air quality management. 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.

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.
- 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 13).

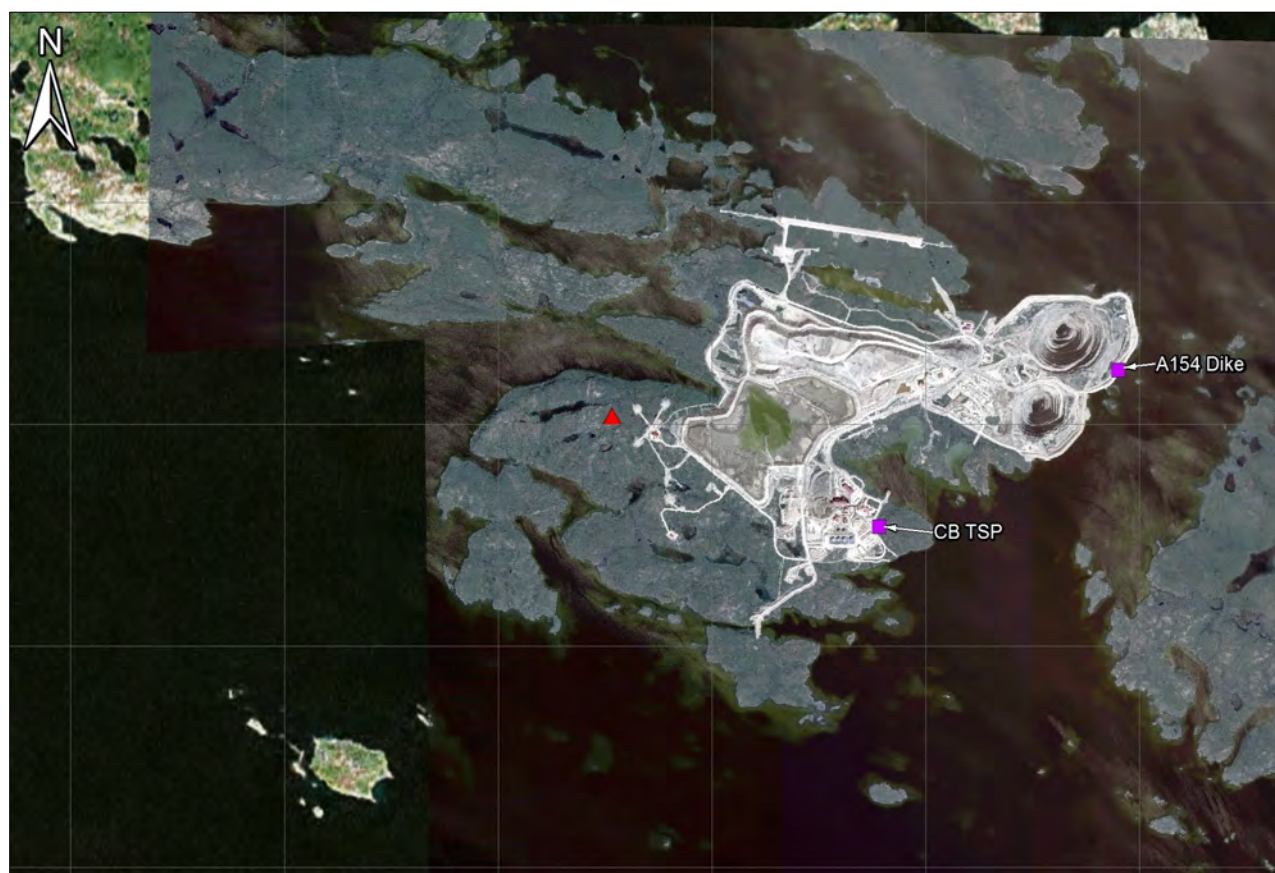


Figure 13. TSP monitoring station locations

- 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 GNWT-ECC 24-hour average TSP guideline (120

$\mu\text{g}/\text{m}^3$) at the CB station (see Figure 14). The maximum daily average value was $23.2 \mu\text{g}/\text{m}^3$, and the minimum value was $0.3 \mu\text{g}/\text{m}^3$. The 2018 annual average TSP concentration at the CB station was $3.6 \mu\text{g}/\text{m}^3$ and was well below the annual GNWT-ECC standard ($60 \mu\text{g}/\text{m}^3$). TSP monitoring at the CB station had valid daily data for 86% of the days in 2018.

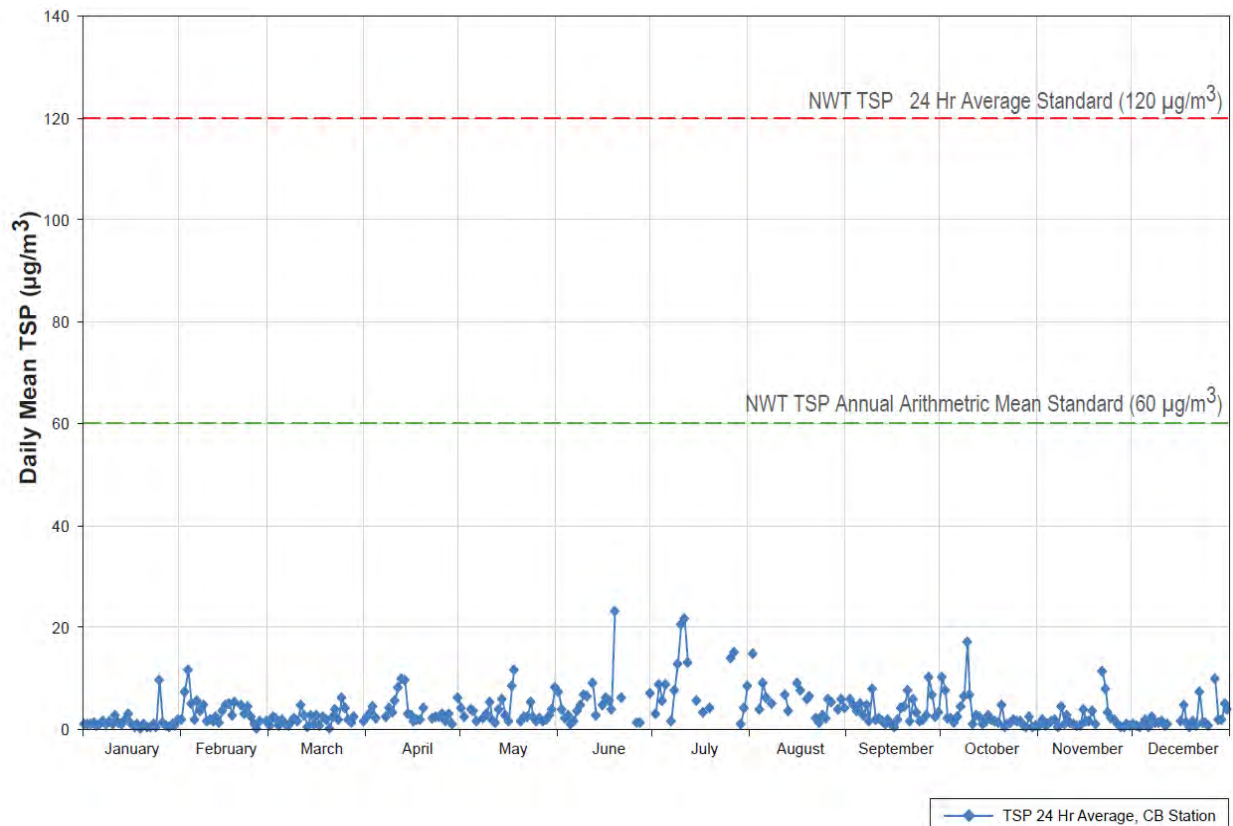


Figure 14. 2018 Communication Building daily average TSP amounts

- From January to October 2017, TSP stations had valid daily data for 71% (CB) and 69% (A154 Dike) of days. TSP levels at the CB TSP station remained below the GNWT-ECC 24-hr standard of 120 micrograms per cubic meter ($\mu\text{g}/\text{m}^3$), and 4 samples were above the GNWT-ECC $60 \mu\text{g}/\text{m}^3$ annual standard (Figure 15). The max daily mean was $97.9 \mu\text{g}/\text{m}^3$ and the minimum daily mean was $0.5 \mu\text{g}/\text{m}^3$ and the annual average was $9 \mu\text{g}/\text{m}^3$. The A154 station showed one sample ($241.1 \mu\text{g}/\text{m}^3$) above the GNWT-ECC 24-hr standard and 4 above the GNWT-ECC annual standard (Figure 16). 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 minimum daily mean was $1.0 \mu\text{g}/\text{m}^3$ and the annual average was $9.9 \mu\text{g}/\text{m}^3$. The 2017 results agree with Diavik's prediction that there would be up to two (2) exceedances of the 24-hr standard per year.

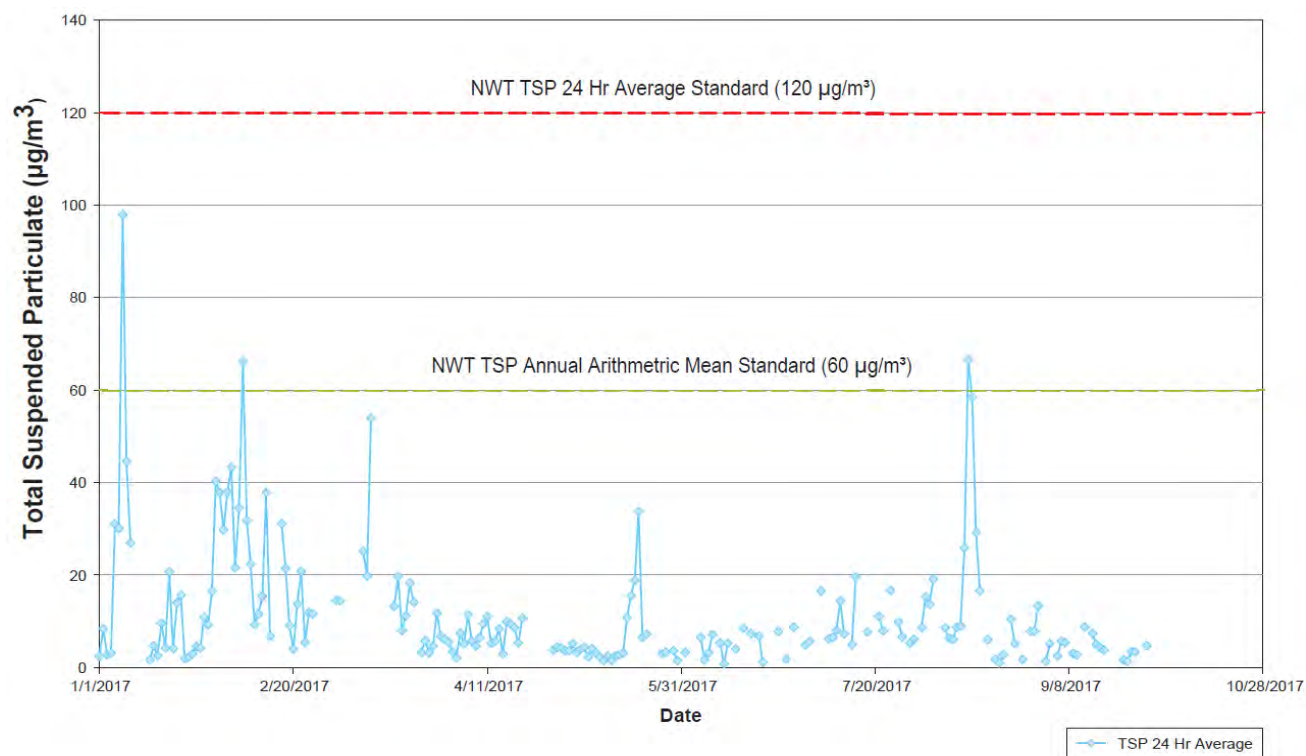


Figure 15. 2017 Communication Building annual 24-hr TSP amounts

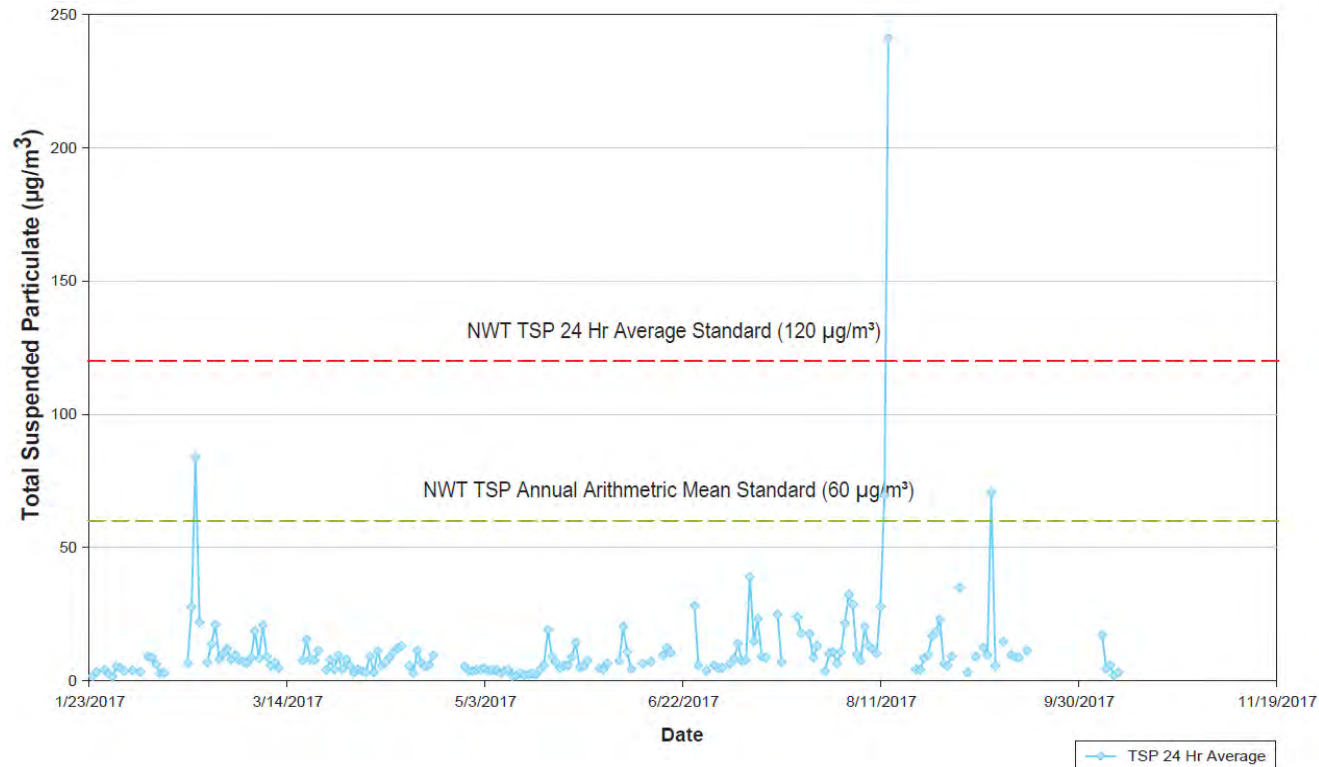


Figure 16. 2017 A154 Dike annual 24-hr TSP amounts

- In 2016, there was one high reading ($150 \mu\text{g}/\text{m}^3$) above the GNWT-ECC 24-hr standard ($120 \mu\text{g}/\text{m}^3$) at the CB TSP station; however, the overall annual mean ($10.3 \mu\text{g}/\text{m}^3$) was lower than the GNWT-ECC annual mean standard ($60 \mu\text{g}/\text{m}^3$). The minimum daily mean at the CB TSP station was $0.7 \mu\text{g}/\text{m}^3$. The winds at the time of the exceedance were analyzed and shown to originated upwind of the mine which would suggest the source of elevated TSP concentrations were not from the mine. Percent valid data for the communications building was 87% and 0% for the dike TSP station. The TSP monitoring station on the A154 dike was offsite for 10 months of the year for repair. The 2016 results agree with Diavik's prediction that there would be up to two (2) 24-hour exceedances per year.
- During 2014 and 2015, TSP readings did not exceed the GNWT -ECC annual mean standard ($60 \mu\text{g}/\text{m}^3$), and there was only one daily exceedance ($124 \mu\text{g}/\text{m}^3$) of the GNWT-ECC 24-hour standard ($120 \mu\text{g}/\text{m}^3$) at the communications building in 2014. In 2014 the CB TSP station maximum daily mean was $82.2 \mu\text{g}/\text{m}^3$ ($124 \mu\text{g}/\text{m}^3$ in 2015), the minimum daily mean was $1.9 \mu\text{g}/\text{m}^3$ ($0.5 \mu\text{g}/\text{m}^3$ in 2015), and the mean annual average was $14.5 \mu\text{g}/\text{m}^3$ ($13.6 \mu\text{g}/\text{m}^3$ in 2015). In 2014, the A154 TSP station maximum daily mean was $64.4 \mu\text{g}/\text{m}^3$ ($16.3 \mu\text{g}/\text{m}^3$ in 2015), the minimum daily mean was $0.3 \mu\text{g}/\text{m}^3$ ($0.1 \mu\text{g}/\text{m}^3$ in 2015), and the mean annual average was $8.7 \mu\text{g}/\text{m}^3$ ($2.3 \mu\text{g}/\text{m}^3$ in 2015.) In 2014, percent valid data for the CB TSP station was 44% (87% in 2015) and 55% (80% in 2015) for the dike TSP station. The 2014-2015 results agree with Diavik's prediction that there would be up to two (2) 24-hour exceedances per year.
- Even with the monitoring stations being located on the mine site, all TSP values measured during 2013 were below the 24-hour standard ($120 \mu\text{g}/\text{m}^3$), except for one day in December at the CB TSP station ($203 \mu\text{g}/\text{m}^3$), that was thought to be due to snow clogging the sensor. All data for both stations were below the GNWT-ECC annual mean standard ($60 \mu\text{g}/\text{m}^3$). The annual average for the CB TSP station was $13.41 \mu\text{g}/\text{m}^3$ and $7.01 \mu\text{g}/\text{m}^3$ for the A154 TSP station. The results of 2013 agreed with DDMI's updated dispersion model predictions completed in 2012.

Dust Deposition

Dustfall rates in 2022 were slightly higher on average than the 2021 rates, but generally within the range of historical data collected for the Mine. The highest Dustfall rates recorded in 2022 occurred at the same three sites as 2019-2021. The annual dustfall rates at all stations were significantly lower than the Alberta Ambient Air Quality objective for dustfall at industrial locations ($1,924 \text{ mg}/\text{dm}^2/\text{y}$). There are currently no air quality standards or objectives for the Northwest Territories. As expected, dustfall rates decreased with distance from the mine. Annual dustfall rates from 2003 to 2022 are displayed visually in Appendix IV. Additional details for the figures provided can be found in the Dust Deposition Report of the Annual AEMP Reports.

- The dustfall rates for 2021 were slightly higher, but comparable to 2020 rates. Dustfall values are higher on average since 2018 compared to years between 2012 and 2018. This is due to A21 open pit becoming active in 2018. The annual dustfall rates at all stations were less than the Alberta Ambient Air Quality objective for dustfall at industrial locations ($1,924 \text{ mg}/\text{dm}^2/\text{y}$).

- 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.

In 2022, analyte concentrations within 100m of the mine footprint were generally higher than in previous years (2020 and 2021). With the exception of aluminium and zinc at one sampled location, all analysed parameters were less than their associated EQC. Analysis found that concentrations of chemistry analytes decreased further from the mine. Several snow water chemistry variables stayed consistent regardless of distance from mining activity, indicating that these variables are not influenced by mine activity. Annual snow water chemistry parameter concentrations from 2002 to 2022 are displayed visually in Appendix V. Additional details for the figures provided can be found in the Dust Deposition Report of the Annual AEMP Reports.

- In 2021, analyte concentrations within 100m of the mine footprint were generally higher than 2019 and 2020 records. Most analysed parameters were less than their associated EQC, with the exception of aluminum at one sampled location.
- 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. 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 accidentally taken closer to the mine site than it should have been so the ability to compare the results is limited.

National Pollutant Release Inventory

Annual air emissions reported by the Mine through Environment and Climate Change Canada's (ECCC) National Pollutant Release Inventory (NPRI) are provided in Appendix VI

Greenhouse Gas Emissions

The Mine reported greenhouse gas (GHG) emissions are part of the annual Greenhouse Gas Emissions Reporting Program (GHGRP) submission to ECCC. Total greenhouse gas emissions reported through

the GHGRP for Diavik in 2022 was 194,572 tonnes of CO₂e, while in 2021 it was 194,258 tonnes of CO₂e. 2020 was 192,741 tonnes of CO₂e. In 2019 it was 192,103 tonnes of CO₂e, in 2018 it was 219,010 tonnes, in 2017 it was 194,968 tonnes and 2016 was 191,632 tonnes of CO₂e, all of which were an increase from 2015 due to A21 dike construction. “CO₂ e” is an abbreviation of ‘carbon dioxide (CO₂) equivalent’. CO₂ is a greenhouse gas, 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 CO₂; this is the CO₂e referred to above. A summary of annual emissions reported through the GHGRP by Diavik are provided in Table 11 below.

The four wind turbines at Diavik were able to offset approximately 4.2 million liters of diesel fuel use in 2022, which was about 11% more than the 3.8 million liters of diesel fuel use offset in 2021.

Table 11. ECCC GHGRP Emissions (tonnes CO₂e)

CAC Emission s	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Carbon Dioxide (CO₂)	192,555	202,924	169,988	182,441	184,457	171,327	175,184	172,231	172,231	191,631	187,860	209,436	192,103	192,171	193,684	194,022
Methane (CH₄)	226	249	171	187	194	182	186	216	224	237	232	260	239	141	135	157
Nitrous Oxide (N₂O)	5,965	30,731	5,318	6,116	6,930	7,077	7,324	6,794	6,970	7,059	6,874	9,313	8,543	430	437	393
Total	198,748	233,903	175,479	188,746	191,582	178,586	182,453	179,241	186,844	198,929	194,968	219,010	200,885	192,741	194,258	194,572

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 and progressive reclamation of the North Country Rock Pile contributed to an increase in mine footprint in 2021. Total habitat loss due to mine disturbance was measured at 11.59km². This is within the predicted amount of 12.67 km². Table 12 shows a running total of the habitat loss to date.

Table 12: Cumulative habitat loss each year.

Predicted Vegetation Habitat Loss (km ²)	Up to 2001	2002 to 2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018 to 2019 *	2020	2021	2022
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	11.55	11.59

* 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 and Lichen Monitoring

In 2019, DDMI adaptively managed the program frequency from every three years to every five years because no large adverse changes have been detected in vegetation and lichen communities. Importantly, the data show no trajectory towards a divergence in the previous and current observed temporal and spatial patterns of plant species abundance and composition. In 2018, EMAB and DDMI discussed and agreed that the upper 95% confidence limit of dustfall reference sites should be used as the trigger for changing the frequency of the program back to a three-year frequency. Therefore, the program is run every 3 or 5 years.

Vegetation

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. 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 vegetation monitoring program was completed in August of 2021. Results agreed with the findings of previous years that dust deposition is a likely driver of observed changes in vegetation species abundance and coverage near the mine. A variety of factors could impact the results of the vegetation program including wildlife grazing, personnel changes, weather variability, and uncommon species identification. The differences between mine and reference plots continue to remain consistent with previous studies. Species richness for vascular plant species (non-lichen plants) was higher on mine plots than reference plots, and species richness for lichen was similar between mine plots and reference plots. Mine plots had greater vascular plant species cover than reference plots, with lichen cover being less on mine plots than on reference plots. This could be related to the effects of dust deposition, however, in years when lichen cover was found to be changed from the previous years near mine plots, there was similar changes seen in reference plots at the same time, suggesting there may be other drivers of lichen abundance as well as mine-related effects. Amount of ground litter (dead fallen leaves and twigs on the ground) has been reduced since 2010 in both near-mine and far-from mine plots. The study indicates that the mine is having a small and localized effect on vegetation near the mine and recommends that the next monitoring cycle should occur in 3 years (2024).

- 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. The program was completed in August 2021.

The 2021 lichen monitoring program collected lichen samples for metals analysis. Samples were collected from 0-6km from the mine, 30-40km from the mine, and 3 far-far field samples were collected at 100km from the mine. The amount of metals in lichen was less than 2016, and has been decreasing from a high in 2010. This confirms a trend of decreasing metals levels in lichen near the mine identified in previous lichen monitoring programs. Field Biologists identified reduced lichen species diversity and coverage in areas near the mine, likely related to dust deposition effects.

Levels of metals in lichen were higher close to the mine than further away but were below the levels used for the 2010 caribou health risk assessment that determined metals levels were not high enough to impact caribou health. Metals levels are decreasing in lichen near the mine over time.

- 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-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 Final Closure and Reclamation Plan.

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:

From 5 March to 10 August 2022, behaviour scans were completed on 38 caribou groups from 0 km to 15 km from the Mine. These caribou were potentially from the Beverly/Ahiak and Bathurst herds based on collared caribou locations. The total number of caribou observed was 702. Group size ranged from 1 to 400 with the average group size of 18 animals (1SD=67 animals). 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 ECC. Pending ECC approval of Diavik's 2022 Wildlife Monitoring and Management Plan, submitted in October 2022, Diavik will no longer conduct behavioural group scans beyond 2022. Future behavioural analyses will instead be informed by collared caribou data. For more information, refer to the 2022 Wildlife Management and Monitoring Report.

Habitat

In 2022, there was 0.06 Habitat Units of direct summer caribou habitat lost, which is similar to previous years (2020 and 2021). The total loss of Habitat Units to date is approximately 2.876 HUs, which is below the predicted amount of 2.965 HUs.

Table 13. Caribou habitat loss (HUs) by year

Prediction		2000-2005	2006	2007	2008	2009	2010	2011	2012	2013-2014	2015	2016	2017	2018	2019*	2020	2021	2022	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	0.05	0.06	2.87

* 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)

In February 2023, DDMI submitted a plan for updated caribou ZOI analysis to the GNWT-ECC for review. Following the approval of the plan DDMI will update the ZOI analysis using caribou collar data.

Previous 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 17).

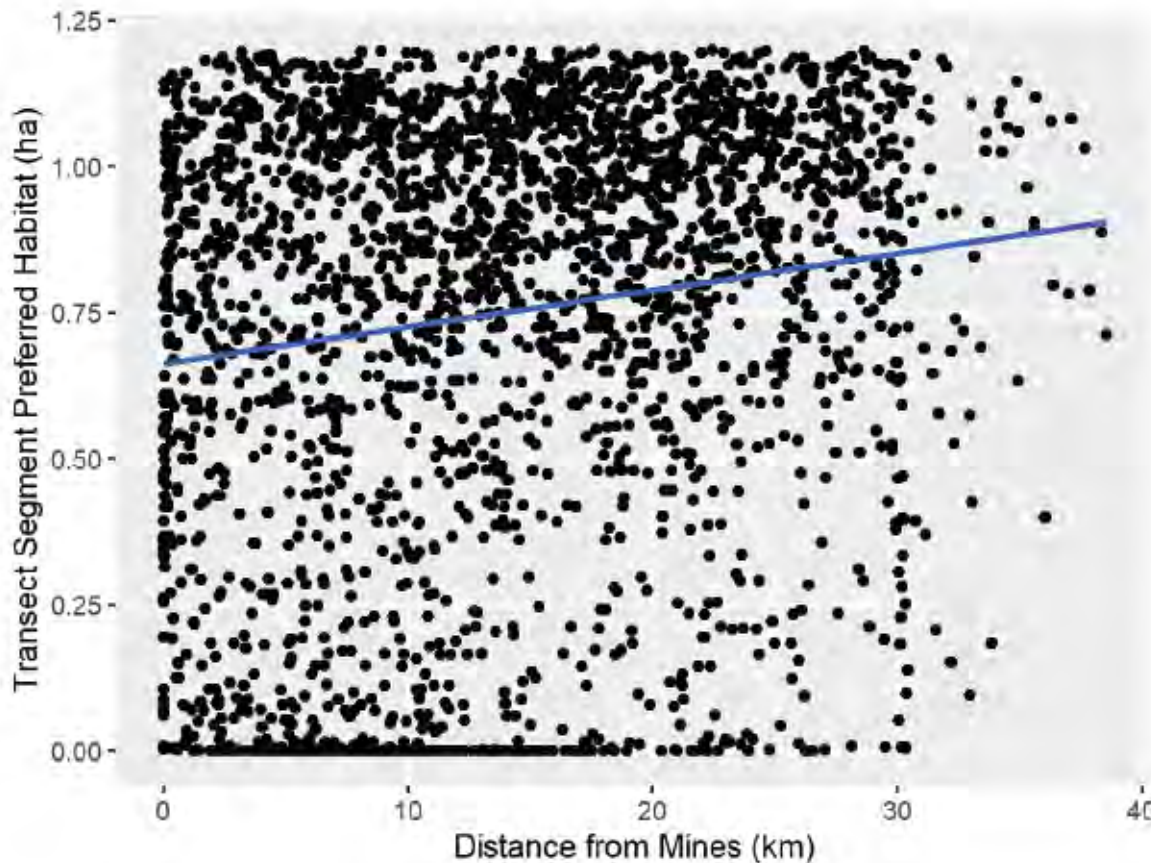


Figure 17. Spatial distributions of preferred caribou habitat area (ha) of aerial survey transect segments, 1998 to 2009, and 2012

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 of disturbance, aerial surveys have been suspended since 2009 (with the exception of 8 July to 13 October 2012). Discussions with Government of the Northwest Territories Environment and Climate Change [GNWT-ECC (formerly GNWT-ENR)]

during the 2021 Diavik Mine Wildlife Monitoring Meetings indicated that aerial surveys can be discontinued as part of Diavik's caribou monitoring. This was on consideration that the number of collars deployed on caribou are adequate for ZOI monitoring. DDMI does not believe there is a benefit that justifies the large annual expense and disturbance to the caribou. Aerial surveys continue to be suspended in favour of other studies that support the GNWT Barren-ground Caribou Management Strategy and Bathurst Caribou Range Plan.

Movements

In 2021, data from caribou satellite collars in the Northwest Territories were analyzed for a zone of influence on Caribou from the Diavik mine. This analysis tracked caribou movements over time within 3km of the Diavik mine and compared the satellite movements of caribou within that zone to caribou more than 30km away from the mine. The researchers looked at the number of hard turns the caribou took and compared this against the habitat type and behaviour scans that were conducted on caribou in the area at the same time as the collared caribou. In previous analyses, Caribou were found to slow down slightly, and make more hard turns when close to Ekati roads. This 2021 analysis found that caribou within 3km of the Diavik mine exhibited very similar movement patterns as caribou further away, and that behaviour scans on caribou near the mine indicate that slowing down and turning more frequently could be signs of foraging in prime caribou habitat. The analysis did not identify any zone of influence on caribou movement caused by the Diavik mine, when compared against caribou far from the mine.

The caribou satellite collar 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

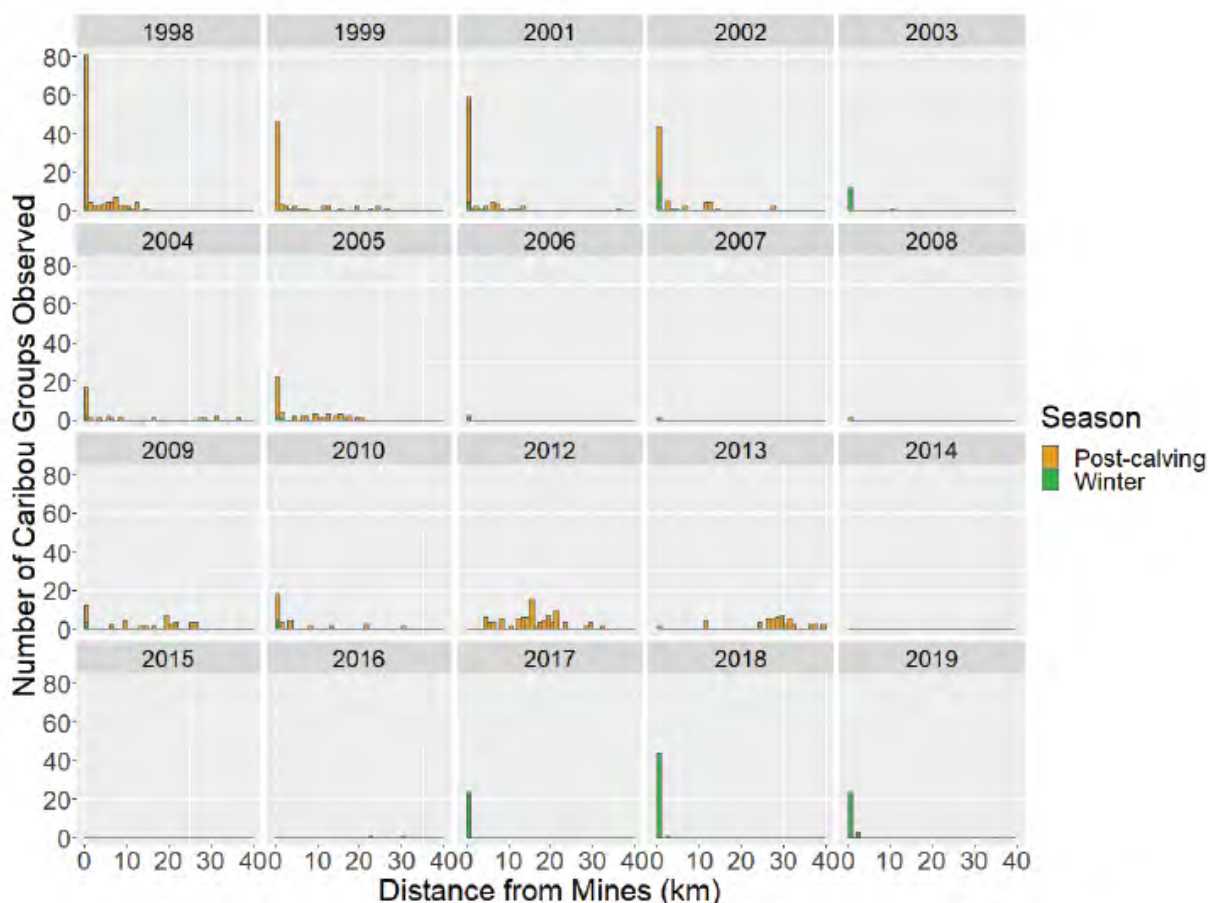
The goal of the ground behavior observation program is to generate enough observations to test possible impacts to caribou based on how they behave closer to and further from the mines. Monitoring is conducted cooperatively with the Ekati mine to collect and share data that covers distances from less 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 5 March to 10 August 2022 behaviour scans were completed on 38 caribou groups from 0 km to 15 km from the Diavik mine. These caribou were potentially from the Beverly/Ahiak and Bathurst herds based on collar locations. The total number of caribou observed was 702. Group size ranged from 1 to 400 with the average group size of 18 animals (1SD=67 animals). The estimated mean proportion (\pm 2SE) of caribou behaviour observed is as follows; bedded 14% (\pm 12%), feeding 55% (\pm 17%), standing 6% (\pm 8%), alert 2% (\pm 5%), walking 15% (\pm 12%), trotting 3% (\pm 6%), and running 5% (7%). The number of caribou groups observed in 2022 remained below the 55 groups in different distance strata required to detect a 15% change in behaviour derived from past summer and autumn results.

The limiting factor for determining this change in behavior was the small number of far-field observations (0 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 18 below.



Note: does not include Ekati scan data since 2010 (n = 10 groups).

Figure 18. Frequency of caribou behaviour groups scans by distance from Mines from 1998 through 2019

- Behaviour scans in 2021 were completed from 18 March to 29 September. A total of 21 caribou groups were scanned ranging from 0 to 15 km distance from the Mine. When reviewing the GNWT caribou collar location data, it appears likely that these caribou were part of the Beverly/Ahiak and Bathurst herds. The total number of caribou observed was 425. Group size ranged from 1 to 200 with the average group size of 20.
- From 6 February to 13 November 2020, 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.
- Few caribou were observed in the study area in 2017, the number of behavioural observations/scans conducted was a total of 32 (0 to 2.7 km from the mine). Caribou collar 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.

Caribou Group Scans Pooled Analysis

In 2022, Diavik analyzed caribou behaviour scans collected from both Diavik and Ekati between 1998 and 2022. Diavik looked at whether behaviour of the caribou changed based on distance from the Diavik and Ekati mines, or with changing environmental factors like insect harassment, habitat, wind, or temperature. The analysis also looked at the behaviours of different group compositions over time. The behaviour of caribou groups with calves was compared separately from those groups without calves to find out how each group's behaviour changed with different factors.

The analysis found that for groups without calves, distance to the mine footprints did correlate with a change in caribou behaviour, but that the effect was not linear. When caribou groups were scanned for behaviour very close to the mine (up to 1km from the mine), they statistically spent more time feeding or resting than in an alert state. From 1 to 3km from the mine, alert behaviour became more prevalent, then decreased from 3 to 20km from the mine.

Behaviour was also seen to change with insect harassment for both groups of caribou with calves and groups of adults. The proportion of time spent feeding and resting was primarily driven by wind speed and insect activity. As insect activity increased, the caribou spent less time resting and feeding.

For caribou groups with calves, environmental effects were more impactful on behaviour changes than distance from the mine. Proportion of time spent feeding was impacted by wind speed and temperature, but distance from the mine did not appear to significantly impact behaviour. This change is consistent with insect harassment at certain temperatures and wind speeds.

The analysis concluded that distance from mine does have an impact on caribou behaviour, but that relationship is not linear and it changes between group composition and time period. Environmental factors like temperature, windspeed, insect harassment and habitat also affected caribou behaviour.

Caribou group behaviour scans are not a method used in the Tier 3 WMMP which was submitted for approval with ECCC 22 October, 2022. Due to reduced herd sizes, it is becoming less and less likely for Caribou to be near the mine in sufficient numbers to get enough data on behaviour from visual inspection to analyze behavioural changes. The timing of the northern migration in the winter (when caribou are typically in the region of the mine) means there are significant risks to leaving site by land to find caribou and document their behaviour away from site. Additionally, snowmobiles are inherently disruptive to caribou and Diavik believes the risk to personnel safety, and the impact on the animals from direct observation is unnecessary, since there are alternatives to studying caribou behaviour in the area around the mine. This represents the final analysis of these group behaviour scan data. Changes in caribou behaviour in relation to distance to mine footprints can continue to be assessed using fine-scale caribou collar data; an alternative to behavioural scanning observations.

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 19a). 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 19b). 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 Tłıchq Training Institute in 2013 developed a map (Figure 20) 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.

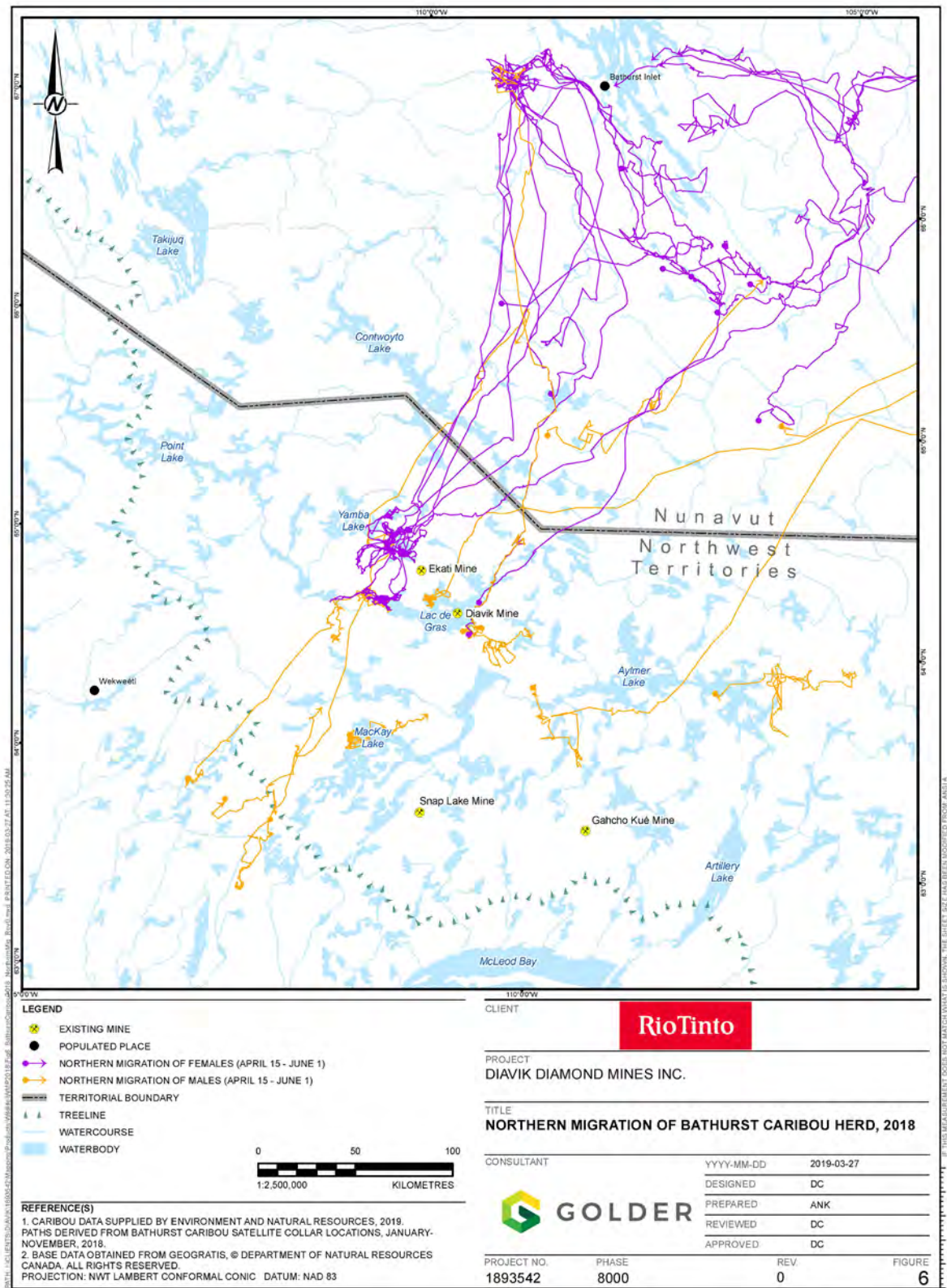


Figure 19a. 2018 northern migration of caribou

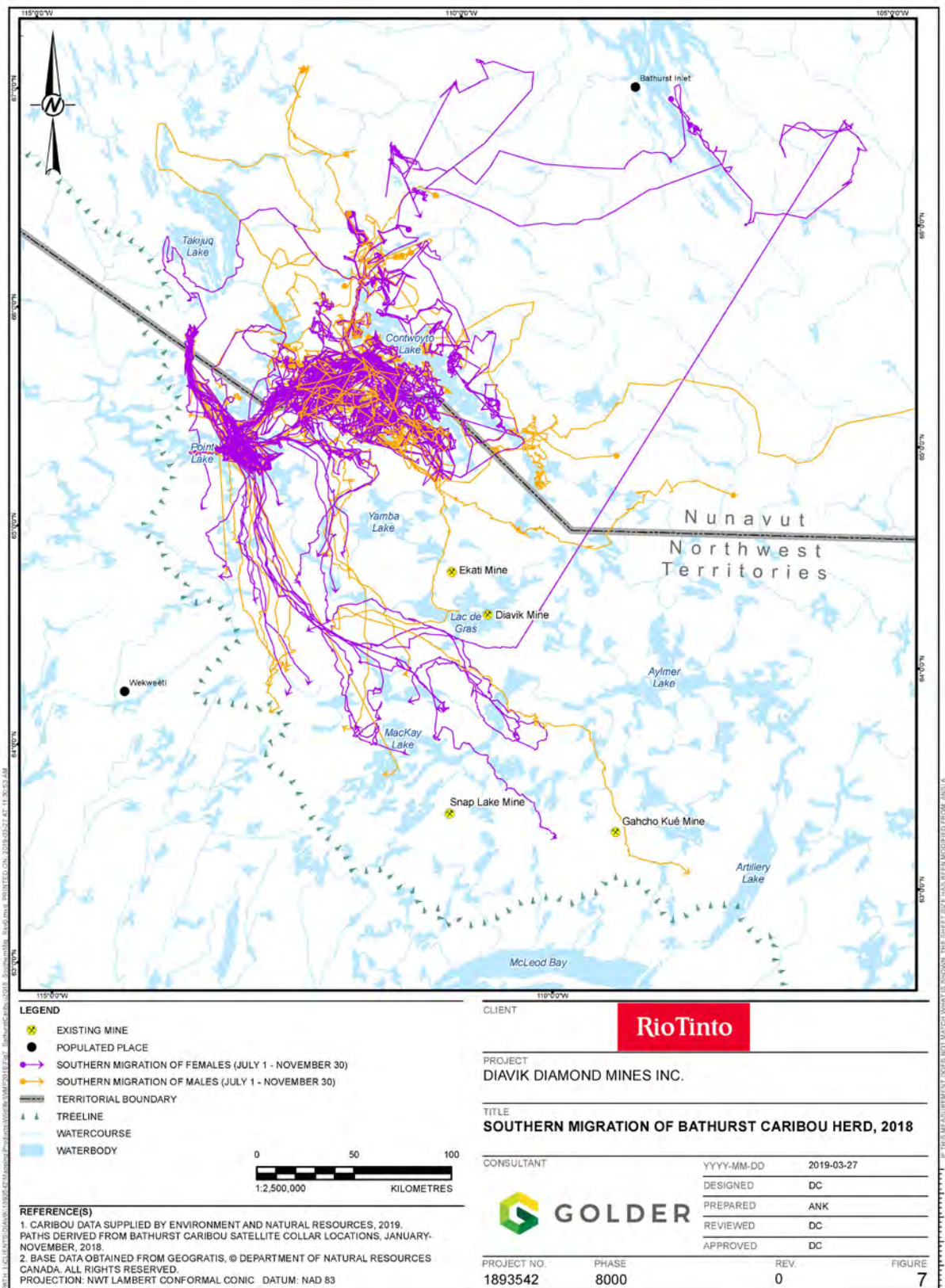
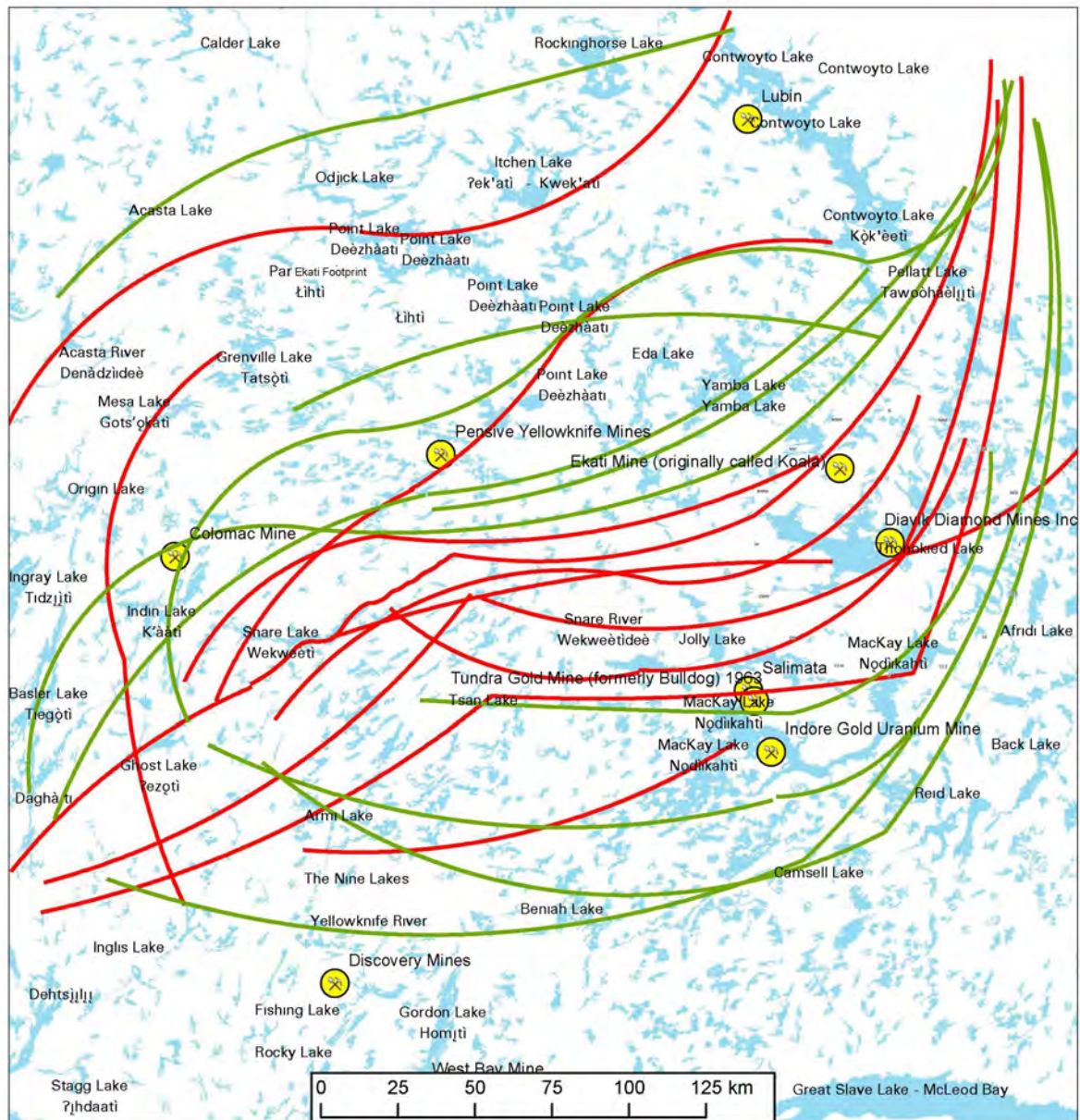


Figure 19b. 2018 southern migration of caribou



Bathurst Caribou Migration Trails

Tłıchǫ Traditional Knowledge

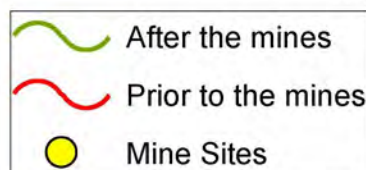


Figure 20. Caribou migration trails prior to and after the Mines (Tłıchǫ Training Institute)

Deterring Caribou from Hazardous Areas

There were two instances of caribou deterrence in 2022. On 13 June, a single caribou was observed at a high traffic area near the process plant. The Environment Department was notified, and traffic control measures implemented, which included all vehicles to remain alert for caribou presence, maintain a large distance (~100 metre), and give caribou right-of-way, if observed. After travelling from the process plant area to a tundra patch near the A21 Portal, the Environmental Department positioned a truck along a nearby bypass road between to discourage the caribou from moving onto the A21 Haul Road. The caribou eventually moved away from the area towards natural habitat nearby.

The second instance of caribou deterrence occurred on 8 July when a single caribou was observed along the A21 Haul Road. The Environmental Department were notified and positioned a truck along the road near the Storage Tank Farm area, moving the caribou north away from its current high-traffic area. The caribou moved towards the Communication Shack and grazed in nearby vegetation. Later in the day, the same individual was observed walking down the road near a camp dormitory wing. The Environment Department issued a site wide advisory to maintain awareness, reduce speed, and give the caribou right-of-way, if observed. The caribou eventually moved off the road towards natural habitat.

Deterrence of caribou away from hazardous areas within the Mine continue to be low. Since 2002, there have been 37 instances where caribou were deterred from hazardous areas, with 26 of these occurring in 2002. Of these 37 instances, 35 were completed by positioning light vehicles to block caribou access. The majority (>80%) of these instances have occurred at the airstrip.

- There was one instance of caribou deterrence in 2021. A single caribou was observed on the South Haul Road. The Environment Department were immediately notified and traffic control measures implemented, which included all traffic in the area stopping at a distance of approximately 100 m from the caribou. At the direction of the Environment Department, two pick-up trucks were positioned to prevent the caribou from returning to the active road. The caribou eventually moved away from the haul road onto nearby tundra.
- There were no deterring events for caribou at the Mine site in 2020, 2019, 2018 or 2017. In July of 2016, 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 deterring events took place in 2015. One caribou deterring event took place in 2014, and no events occurred in 2012 or 2013. In 2011, caribou were deterred away from mine infrastructure three times. There were also two deterring 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 deterring events have been required since the mine began operating.

Pre-Blast caribou scans

In 2022, a 1km exclusion zone was implemented during surface blasting activities. No caribou were identified within the 1km exclusion zone immediately prior to or during blasting operations.

Mortality

There were no caribou mortalities or injuries caused by mining activities in 2022.

- No caribou mortalities or injuries were recorded in 2021.
- In 2020, GNWT-ECC biologists came to site to euthanize a caribou that was injured by natural means and was in danger of suffering. The animal was returned 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 14. 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
2019	1	0
2020	1	0
2021	0	0
2022	0	0

Support

The GNWT-ECC 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, ECC 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 mine-related 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 8.38 km², which falls below what was predicted (8.67 km²).

Mortality

The calculated mine mortality rate for grizzlies over the 23-year monitoring period (since 2000) is 0.13, which is near the lowest limit of the predicted range.

No grizzly bear mortalities occurred in 2022.

- In 2021, a young bear was spotted on site with injuries. At the direction of ECC, Diavik euthanized the injured bear. A post-mortem assessment showed extensive bite and puncture wounds, indicating the wounded bear had been in conflict with another bear and was not injured by interaction with the mine.
- In 2020, following permission from GNWT-ECC, 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 ECC for autopsy and meat salvage.
- In 2004, a bear was euthanized with RWED permission (now ECC) after it charged several windows at the cafeteria towards people inside and attempted to enter a building at multiple locations. The same bear had previously broken into the Diavik airport terminal building and a winter road camp.

- In 2001, a relocation attempt on a grizzly sow and two cubs led to the death of a bear cub during tranquilization.

Annual mortality and relocation totals for grizzly bears are provided below in Table 15.

Table 15. Grizzly Bear Relocation and Mortalities

Year	2001	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Mortality	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0
Relocation	1	0	1	0	0	0	0	0	0	0	0	3	1	0	0	0	1	0	0	3	0	0

Abundance/Distribution

There were 75 reported instances of grizzly bears on East Island, and a total of 164 grizzly bears were observed (Table 16). Grizzly bears were observed on 57 days from 3 May to 21 October, 2022. 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 16) however, staff reporting incidental observations does foster an awareness of wildlife issues at the Mine.

Table 16. Average Camp Population and Number of Incidental Grizzly Bear Observations, 2002-2022

Year	2002	2003	2004	2005	2006	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020	2021	2022
Avg. # people in camp	110 0	470	397	64 6	716	747	979	562	579	630	629	537	484	524	625	641	578	586	585	558	578
# Bear obs., on island	5	19	24	43	21	41	5	22	44	56	97	67	69	77	94	89	90	80	95	80	75

- 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-ECC and EMAB.
- In 2012, a study was commenced in partnership between Diavik, Ekati and De Beers (Gahco Kue) to study grizzly presence near the mines by collecting hair snags for DNA analysis. TK/IQ

was used to identify the preferred habitat of grizzly bear and then determine the location in which to set 113 posts to collect hair samples for DNA analysis. 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 17) show a stable to increasing number 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 to increasing) due to the Ekati and Diavik mines. At the Diamond Mine Wildlife Monitoring Meeting on the 2nd and 3rd of February 2021, the partners in the study and the GNWT-ECC agreed there was limited value in continuing the grizzly DNA survey and collectively agreed to discontinue the survey. GNWT-ECC may invite the mines to contribute to future regional studies if it identifies a need for them.

Table 17. Number of Grizzly Bears Identified during DNA Analysis

Year	# samples	Individuals	
		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:

In 2022, there were nine reported instances when wolverines were observed on East Island. These sightings were reported during eight days from 12 January to 16 December. These observations are collected incidentally and may contain repeated observations of the same animal. Of the nine reported instances, one required deterrent action when a light vehicle horn was used to attempt to move a wolverine off of Mine infrastructure. There were no wolverine deaths in 2022. Relocations and mortalities continue to be uncommon at the Mine (Table 17).

Table 18. Wolverine observations, relocations and mortalities, baseline to 2022

	Baseline ^(a)	2000-2004	2001	2002-2007	2008	2009-2011	2012	2013-2014	2015	2016	2017	2018	2019	2020	2021	2022
Days with Visits	27/year	25	36	149	46	53	11	9	118	105	44	28	21	17	6	8
	Total = 82															
Relocations	1	0	2	0	0	0	0	0	1	2	0	0	2	1	0	0
Mortalities	1	0	1	0	1	0	2	0	0	1	0	0	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.

- Since 2000, eight 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.
- Many of the 2015 sightings were of the same individual that was relocated on 23 March 2015. Similarly, many of the sightings in 2008 were of a male wolverine 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 18.

In 2022, a total of 16 tracks were found over a single first round of transect surveys from 29 March to 14 April, with an average track density of 0.06 tracks/km/day. Only the first round of the wolverine track survey was completed due to disruptions from the onset of the COVID-19 pandemic.

Table 19. Wolverine Track Index, 2003-2022

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 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 round not completed due to Covid-19 disruptions.			

Year	Survey Period	Number of Tracks	Distance Surveyed (km)	Track Index (Tracks/km)
2021	26 Mar – 4 Apr	24	156	0.15
2021	Second round not completed due to Covid-19 disruptions			
2022	29 Mar – 14 Apr	16	148	0.11
2022	Second round not completed due to Covid-19 disruptions			

Snow Survey Conclusions

The results of the 2022 wolverine snow track survey are consistent with the finding of the 2021 wolverine snow track survey and the 2019 comprehensive report analysis in that occupancy rates remain stable over the life of the Mine. In 2022, detection rates could not be estimated in part because the second survey was not completed due to COVID-19 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.
 - 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.
 - 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 participated in a joint wolverine DNA research program with the GNWT and EKATI mine in certain past 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%.

Program partners at the 2021 Diamond Mine Wildlife Monitoring Meetings determined that the wolverine hair snagging program will be discontinued. Previous studies have shown that the wolverine population in the slave geological province (the area that Diavik, Ekati, and the Gahcho Kue mines are located) are stable and this is corroborated by the findings of the wolverine snow track survey. The snow track survey provides presence, detection rates and relative abundance of Wolverine in the Diavik region. Direct mine-related wolverine mortalities at Diavik continue to be infrequent, which is a key driver of population demography. There is limited information provided by the wolverine hair snagging program that the snow track survey does not already provide.

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 2022, a total of 60 Pit Wall/infrastructure inspections were completed from 10 May until 19 September to determine use by raptors.

One peregrine falcon nest was recorded in 2022 at the Site Services Lineup area. An individual adult was observed on 3 June on the rock wall where nesting has previously occurred. Two nestlings were observed on 24 July, with observations occurring until mid-August. On 14 August, one nestling was observed still in the nest, while the other had fledged and was perched on rocks above. Both were presumed to have fledged from the nest by August 20 as no other activity was recorded.

Potential nesting of a rough-legged hawk was recorded at the A21 south ramp between 14 to 29 May. Mating behaviour was noted on 14 May with one adult landing at a constructed nest along the south wall. On 14 May, an adult was observed landing at the nest briefly, then flying off. On 29 May, an adult was observed flying over the A21 pit, but no interactions with the nest were observed. No other observations of rough-legged hawk nesting were recorded at the site after this last observation. Although not considered “raptors”, common ravens (*Corvus corax*) are functional raptors and were confirmed nesting on the southeast fuel tank in the South Tank Farm. Additionally, multiple American robin (*Turdus migratorus*) were recorded nesting within the entrance of the A21 Portal as well as on the outside stairs of the North Inlet Water Treatment Plant. The A21 Portal was not in use during the time of nesting, and North Inlet Water Treatment Plant staff used alternate accesses while the nest was active. Table 19 summarizes nests observed in 2022.

Two raptor mortalities occurred in 2022. On 30 August, a deceased rough-legged hawk was discovered along the roadway on top of the A21 dike, near a previously recorded rough-legged hawk nest on the south ramp of the A21 pit. A second deceased rough-legged hawk was discovered on 4 September in the middle of the road on the A21 dike. The causes of both mortalities are unknown; however, due to the proximity to Mine roads, both mortalities could have been the result of collisions with vehicles.

In 2022, DDMI incorporated incidental observations of rare or uncommon bird species (species of concern) that are observed within the Diavik mine study area by expanded its Standard Operating Procedures for weekly raptor monitoring and compliance monitoring to include monitoring for the presence (and nesting activity) of migratory birds which include barn and bank swallows during general bird nesting period (early may to mid-august). No bird species of concern were detected in 2022.

Table 20. Nests observed on Mine infrastructure and open pits in 2022

Area	Species	Date	Observations
Site Services Line Up Area	Peregrine falcon	3 June to 14 August	A potential nest was first observed on 3 June where a single adult was observed perched on the rock wall where previous nesting has been observed. The nest was deemed successful as one juvenile had fledged from the nest and was observed on 14 August perched on rocks above the nest. Both juveniles had presumably fledged by 20 August.
South Tank Farm	Common raven	10 May to 21 June	An active common raven nest was recorded on 10 May through to 21 June. Four nestlings were visible on 8 June. The nest was deemed successful as one juvenile had fledged from the nest and was observed perched on top of the diesel tank on June 19. No bird activity was recorded after June 21.
A21 Portal	American robin	11 to 15 June	Multiple active American robin nests were recorded on 11 June through to 15 June. Nest success was not recorded.
North Inlet Water Treatment Plant	American robin	11 June	One active American robin nest with four eggs was recorded on the outside stairs of the North Inlet Water Treatment Plant on 11 June. Nest success was not recorded.

- In 2021, a total of 67 Pit Wall/infrastructure inspections were completed from 7 May until 5 September. Two rough-legged hawk nests were recorded; one on the south side of the A21 South Ramp Highwall and one at the Site Services Lineup Wall. The nest at the A21 South ramp was observed on 12 May along with two adults. An adult was frequently observed in the nest throughout May to early July, and three nestlings were observed in the nest on 4 July, with the last observation occurring on 8 August when they were observed out of the nest. The nest at the Site Services Lineup Wall was first observed on 30 May with a single adult sitting on the nest. Three nestlings were observed on 11 July, with all three having fledged by 8 August when they were observed perched near the nest. Although not considered “raptors”, common ravens (*Corvus corax*) are functional raptors and were confirmed nesting on the stairs of a fuel

tank in the south Tank Farm. Additionally, one American robin (*Turdus migratorus*) was identified nesting on machinery in the heavy equipment laydown area.

- Two raptor mortalities occurred in 2021. On 2 August, a deceased rough-legged hawk was discovered by the dewatering shack at the south entrance of the A21 pit. On 10 October, a dead short-eared owl (*Asio flammeus*) was discovered in the middle of the road, halfway between the airport and the north inlet water treatment plant. The causes of both mortalities are unknown; however, due to the proximity to Mine roads, both mortalities were possibly the result of collisions with vehicles.
- 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 in 2020.
- 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 ECC for necropsy, the cause of the mortality is unknown.
- 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 ECC. 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 20). 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 ECC 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 ECC and other researchers. Contribution of nest monitoring data to ECC for inclusion in regional and national databases is scheduled for every five years. The next regional survey is scheduled for 2025.
- 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 21. 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
	Daring	-	-	-	-
2001	Diavik	6	2	0	0

Year	Survey Area	Total Sites	Occupied	Productive	Total Young
2002	Daring	13	3	1	3
	Diavik	6	4	1	3
	Daring	18	10	9	15
2003	Diavik	6	1	0	0
	Daring	10	5	3	4
2004*	Diavik	6	5	4	7
	Daring	12	6	1	2
2005*	Diavik	6	3	1	2
	Daring	10	5	1	1
2006*	Diavik	6	3	0	0
	Daring	10	4	1	3
2007*	Diavik	6	3**	2	7
	Daring	10	1	2	8
2008*	Diavik	6	5***	2	3
	Daring	12	6	3	4
2009*	Diavik	6	4	2	5
	Daring	12	5	3	6
2010*	Diavik	8	6	3	7
	Daring	12	5	3	7

- Daring Lake data originates from the Daring Lake research station (S. Matthews, personal communication, ECC).
- *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 3.15 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 area.

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 (Version 3.1) with the Wek'èezhìi Land and Water Board that was developed with review and input from the Participation Agreement (PA) organizations. Additionally, Diavik also has an approved PKMW Engagement Plan that is specific to the PKMW Project and informs DDMI's engagement with potentially affected Indigenous Groups during the implementation of the PKMW Projects to ensure that water is safe for people, aquatic life, wildlife, and suitable for cultural use. Table 21 summarizes engagements relating to the environment that Diavik conducted in partnership with the PA organizations and potentially affected Indigenous organizations during 2022.

Where possible, Diavik tries to include community members in environmental monitoring programs. In 2022, a community participant from Lutsel'ke came to site to help with the Wolverine track survey program.

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. EMAB's [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.

In 2022, in-community and in-person engagements were considerably impacted due to Covid-19 and a considerable number of engagements, particularly during the first half of the year, were completed by telephone and videoconference. Diavik worked with community partners to ensure that engagements were adapted to suit the needs of the 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.

In 2022, significant engagement occurred regarding the Diavik Water License amendment application. This application was submitted to allow site reclamation activities (as approved in the current Interim Closure and Reclamation Plan V4.1) to begin in certain areas before mine closure. This water licence amendment would give the Wek'èezhìi Land and Water Board the mechanism to allow Diavik to begin reclamation activities before mine closure including:

- Closing the A418 open pit and associated underground tunnels and begin depositing Lake water into the open pit.
- Removing water retention dikes in specific engineered collection ponds and returning those associated watersheds on the island to pre-development drainage patterns.

There was also significant engagement regarding the Final Closure and Reclamation Plan (FCRP) V1 that will replace the existing Interim Closure and Reclamation Plan V4.1. The FCRP includes closure

and reclamation plans for all parts of the mine site. As the Water Licence amendment includes reclamation activities that are covered by the FCRP, there is overlap between the two processes. Significant multi-party regulatory engagement (workshops, technical sessions, public hearings) between all stakeholders (communities, GNWT, federal government) and EMAB, occurred for both the Water Licence Amendment and the FCRP, as well as the community engagement listed below.

Table 22. Community engagement during 2022

Engagement	Location	Date
Tłıchǫ Government		
Covid 19 Discussions	Telephone	Multiple
FCRP Discussion and/or Workshop	Multiple (Incl. Diavik Mine Site, Yellowknife)	Multiple
Leadership Meeting/Engagement	Multiple	Multiple
Socio-economic Engagement	Multiple	Multiple
Water Licence Amendment for Progressive Reclamation	Multiple	Multiple
Implementation Committee Meeting	Virtual Meeting	8 March
TG inquiry regarding a lost hunter	Multiple	27 March, 29 March
TK Panel #14 (PKC Cover, N. Inlet closure, TK monitoring in closure)	Yellowknife	20 – 22 April
Recruitment	Multiple (incl. Behchoko, Gameti)	Multiple
PDAC Panel Planning and PDAC Conference	Multiple (incl. Yellowknife, Toronto)	Multiple
A21 FS Approval	Text	22 June
AEMP TK Camp (Discussions; final verifications, final report)	Multiple (incl. Yellowknife)	Multiple
TK Panel #15 (Incorporating traditional knowledge into closure observations)	Yellowknife, Diavik Mine Site	7 – 9 June
PA Payment/Renewal	Multiple	Multiple
Site Visit Planning	Telephone	20 July, 26 September
TK Panel #13 Final Report	Email	29 July
Environment and Regulatory Update (TK Panel, FCRP, Water Licence)	Telephone	18 August

Engagement	Location	Date
RFP - Economic prefeasibility study for repurposing Diavik mine infrastructure	Email	23 August
Site Visit and Elder Workshop	G&G, DDMI, Yellowknife	31 August – 2 September
CSP emailed Gameti regarding a Community visit	Email	14 November
TK Closure Watching Program Discussion	Multiple	Multiple
Kitikmeot Inuit Association		
FCRP Discussion and/or Workshop	Multiple (Incl. Diavik Mine Site, Yellowknife)	Multiple
PKMW Engagement	Multiple	Multiple
Socio-economic Engagement (Closure planning, community open house)	Multiple	Multiple
Visit Planning	Telephone	9 March
PA Payment/Renewal	Multiple	Multiple
Community Update (Diavik business update, closure)	Kugluktuk	4 April
Closure Social Interviews Workshop (Closure social impacts, mitigations, schedule, follow-up)	Kugluktuk	5 April, 8 August
Leadership Meeting/Engagement	Multiple (incl. Cambridge Bay)	Multiple
AEMP TK Camp (Discussions; final verifications, fish concerns, final report)	Multiple (incl. Yellowknife)	Multiple
TK Panel #14 (PKC Cover, N. Inlet closure, TK monitoring in closure)	Yellowknife	20 – 22 April
TK Panel #15 (Incorporating traditional knowledge into closure observations)	Yellowknife Diavik Mine Site	7 – 9 June
TK Panel #13 Final Report	Email	29 July
PDAC Panel Planning and PDAC Conference	Multiple (Incl. Toronto)	Multiple
Asset Site Tour Invitation	Email	2 August
Lake Trout Fish Sampling Planning	Email	15 August, 18 August
RFP - Economic prefeasibility study for repurposing Diavik mine infrastructure	Email	23 August

Engagement	Location	Date
Discussion on Diavik Closure and Potential effects on Kitikmeot Inuit Association	In Person, Virtual Meeting	27 September
TK Closure Watching Program Discussion	Multiple	Multiple
Water Licence Amendment Application	Email	21 November
North Slave Metis Alliance		
COVID 19 Discussions	Telephone	19 January
TK Panel Sessions, Wildlife Committee	Telephone	28 January
FCRP Discussion and/or Workshop	Multiple (Incl. Diavik Mine Site, Yellowknife)	Multiple
PKMW Engagement	Multiple	Multiple
Water Licence Amendment for Progressive Reclamation	Multiple	Multiple
PA Payment/Renewal	Multiple	Multiple
Leadership Meeting/Engagement	Multiple (incl. Yellowknife)	Multiple
TK Panel #14 (PKC Cover, N. Inlet closure, TK monitoring in closure)	Yellowknife	20 – 22 April
TK Panel #15 (Incorporating traditional knowledge into closure observations)	Yellowknife, Diavik Mine Site	7 – 9 June
AEMP TK Camp (Discussions; final verifications, final report)	Multiple (incl. Yellowknife)	Multiple
Indigenous Peoples Day Event	Yellowknife	21 June
Site Tour Invite, Asset Site Tour	Email	12 July
TK Panel #13 Final Report	Email	29 July
Asset Site Tour Invitation	Email	2 August
RFP - Economic prefeasibility study for repurposing Diavik mine infrastructure	Email	23 August
TK Closure Watching Program Discussion	Multiple	Multiple
Yellowknives Dene First Nation		
PKMW Engagement	Multiple (incl. Dettah)	Multiple
COVID 19 Discussions	Multiple	Multiple

Engagement	Location	Date
AEMP TK Camp (Discussions; final verifications, final report, documentary)	Multiple (incl. Yellowknife)	Multiple
Leadership Meeting/Engagement	Multiple (incl. Yellowknife)	Multiple
Regulatory Discussions (Check in, updates)	Virtual Call	28 January, 30 January
FCRP Discussion and/or Workshop	Multiple (Incl. Diavik Mine Site, Yellowknife)	Multiple
TK Panel and AEMP report verification – path forward	Email	8 February
Data Sharing Agreement	Email	Multiple
PA Payment/Renewal	Multiple	Multiple
TK Panel, DSA, Funding Discussion	Call	18 March
TK Panel #14 (PKC Cover, N. Inlet closure, TK monitoring in closure)	Yellowknife	20 – 22 April
Recruitment	Multiple (Incl. Dettah)	Multiple
Socio-economic workshops (HR, funding proposals, closure impact)	Multiple (Incl. Dettah)	27 April, 7 October
DCC Training Proposal letter of support	Letter	5 May
TK Panel #15 (Incorporating traditional knowledge into closure observations)	Yellowknife, Diavik Mine Site	7 – 9 June
Site Visit	Telephone	20 July
TK Panel #13 Final Report	Email	29 July
Asset Site Tour Invitation	Email	2 August
TK Closure Watching Program Discussion	Multiple	Multiple
RFP - Economic prefeasibility study for repurposing Diavik mine infrastructure	Email	23 August
Water Licence Amendment for Progressive Reclamation	Multiple	Multiple
Lutsel K'e Dene First Nation		
Leadership Meeting/Engagement	Multiple	Multiple
PA Implementation Discussion/Workplan (scheduling, recruitment, wolverine monitoring, HR, upcoming	Multiple (incl. Yellowknife)	Multiple

Engagement	Location	Date
engagement, site tours, hide camp, chief and council meet, LKDFN leadership)		
COVID 19 Discussion	Telephone	20 January
Discussions regarding TK Panel Sessions, Wildlife Committee	Telephone	20 January
FCRP Discussion and/or Workshop	Multiple (Incl. Diavik Mine Site, Yellowknife)	Multiple
Regulatory Update	Multiple	Multiple
PKMW Engagement	Multiple	Multiple
Water Licence Amendment for Progressive Reclamation	Multiple	Multiple
2022 Engagement Planning	Virtual Call	28 February
PA Payment/Renewal	Multiple	Multiple
TK Panel #14 (PKC Cover, N. Inlet closure, TK monitoring in closure)	Yellowknife	20 – 22 April
Closure Socio-economic Discussions (Interviews, HR, workshops, summary report conveyance)	Multiple (incl. Lutselk'e)	Multiple
Open House and Community Feast	Lutselk'e	18 May
AEMP TK Camp (Discussions; final verifications, final report, documentary)	Multiple (incl. Yellowknife)	Multiple
TK Panel #15 (Incorporating traditional knowledge into closure observations)	Yellowknife, Diavik Mine Site	7 – 9 June
TK Panel #13 Final Report	Email	29 July
Asset Site Tour Invitation	Email	2 August
PA Implementation	Multiple	Multiple
TK Closure Watching Program Discussion	Multiple	Multiple
RFP - Economic prefeasibility study for repurposing Diavik mine infrastructure	Email	23 August
Annual Cisco Harvest	Lutselk'e	21 September
LKDFN Youth Tour	DDMI	20 October
Site Visit (general business update, closure update, My Path discussion)	Diavik Mine Site	30 November

Engagement	Location	Date
Potentially Affected Indigenous Organizations		
Deninu Kue First Nation		
FCRP Discussion and/or Workshop	Multiple (Incl. Diavik Mine Site, Explorer Hotel)	Multiple
PKMW Engagement	Multiple	Multiple
Regulatory and Environmental Engagements	Multiple	Multiple
Water Licence Amendment for Progressive Reclamation	Multiple	Multiple
Asset Site Tour Invitation	Email	2 August
TK Closure Watching Program Discussion	Multiple	Multiple
Northwest Territory Métis Nation		
PKMW Engagement	Multiple	Multiple
FCRP Discussion and/or Workshop	Multiple (Incl. Explorer Hotel)	Multiple
Regulatory and Environmental Engagements	Multiple	Multiple
Cultural Water Quality Criteria Workshops	Telephone	21 March
Asset Site Tour Invitation	Email	2 August
TK Closure Watching Program Discussion	Multiple	Multiple
Fort Resolution Métis Government		
PKMW Engagement	Multiple	Multiple
FCRP Discussion and/or Workshop	Multiple (Incl. Explorer Hotel)	Multiple
Regulatory and Environmental Engagements	Multiple	Multiple
Asset Site Tour Invitation	Email	2 August
TK Closure Watching Program Discussion	Multiple	Multiple

Traditional Knowledge Panel

In 2022 there were two TK Panel sessions. TK Panel Session #14, which took place between 20 April and 22 April, and TK Panel Session #15 between 7 June and 9 June.

Due to COVID-19 restrictions at Diavik, the TK Panel Session #14 met at the Tree of Peace Friendship Centre in Yellowknife instead of travelling to the Mine site. The session was held in a large event room to enable social distancing. However, due to the location being away from Diavik, Panel members were not able to view areas of the site in person and instead relied on images, videos, and descriptions of Mine features. As such, due to the aforementioned limitations, TK Panel Session #15 included a daytrip to the Mine on 8 June.

In 2022, the TK Panel Session #14 focused on the plan for closure of the PKC area, North Inlet, and a discussion on the TK Monitoring Program at Diavik post-closure. The TK Panel Session #15 focused on bringing new TK Panel members up to speed by outlining the overall goals of the TK Panel and the expected outcomes of the sessions. Session #15 included a one-day site visit to Diavik – the first one for the Panel since the suspension of visitors to site due to COVID-19 protocols introduced in 2020. The site visit served as an opportunity for Panel members to see the changes that have occurred over the past two years and to view the areas of the mine discussed, but not visited, during the TK Panel Session #14. The final goal of the TK Panel Session #15 was to continue the discussions of a TK Watching Program which was started during the TK Panel Session #14. The recommendations from Sessions #14 and #15 and DDMI's responses to recommendations from Session #13 are included in Appendix III.

The goals of the TK Panel Sessions #14 and #15 were to:

- Present the plan for closure of the PKC area;
- Present the plan for closure of the North Inlet;
- Discuss a TK Monitoring Program at Diavik, post closure;
- Bring new TK Panel members up to speed on the overall goals and expected outcomes of the TK Panel Sessions;
- Have TK Panel members visit the Mine in order to see the changes that have occurred over the past two years

Following discussions during the TK Panel Session #14 and #15, the TK Panel provided several recommendations on the following topics:

- **PKC Cover** – Placement of large boulders around the PKC to act as a wildlife deterrent. Use of thermistors to monitor the freezing of the PKC cover, and the continuation of monitoring the frozen PKC cover post-closure to ensure it is not an animal attractant and that there is no leakage into the surrounding waterways due to climate change impacting the stability of the PKC cover.
- **North Inlet Closure** – Testing the North Inlet for fish before it is reconnected to Lac de Gras and testing the water quality of the North Inlet before it is reconnected to Lac de Gras to ensure that contamination levels have reached an acceptable amount.

- **TK Monitoring** – Creation of a TK Monitoring/Watching Committee that will focus on observing wildlife, vegetation, water clarity, lake sediment, fly-bys for snow and ice conditions and cleanliness, continuation of fish camps. Recommendations were provided on the setup and logistics of the TK Monitoring Program, and what it should focus on in the first five years, ten years, and 20+ years, post-closure.
- **General Closure** - Have the Water Treatment Plant be the last building decommissioned and a recommendation to leave some accommodation structures intact as it would help hunters, trappers, and monitors post-closure, including in case of an emergency. DDMI to present a list of materials being buried in the landfill as well as the materials not permitted in the landfill. Backhauling unneeded materials to limit the amount of waste in the Diavik landfill. Recommendation that communities be asked what resources they would like to have from the Mine upon closure, e.g. kitchen appliances, gym equipment, etc.
- **TK Panel and Community Monitoring** – Host TK fish camp every two years, rather than every three years. Recommendation for DDMI to fund community-based monitoring programs. Recommendation for DDMI to improve communication with communities about the timing of upcoming events or community meetings and provide information ahead of time for review, and for. DDMI to bring two translators per language to TK Panel Sessions.
- **Coppermine River Sampling** - Recommendation for DDMI to present results of Coppermine River water testing and discuss the potential for more frequent sampling of the Coppermine River.

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 4.2 million litres of diesel fuel use and approximately 11,336 tonnes of emissions (CO₂e) in 2021. The turbines have flashing lights to help deter wildlife and reduce bird strikes from the rotating blades. Additionally, approximately 234,204 litres of waste oil was collected to be used in the waste oil boiler during 2022. Since it was commissioned in 2014, a total of just under 2.0 million litres of waste oil has been burned to create heat, rather than having to ship it off-site.

Diavik continues to look for new ways to reduce energy needs across site. Additional energy efficiency measures include; heat recovery from the electricity generators and boilers, use of LED lighting in buildings, photocells installed in outdoor light poles, installation of variable frequency drive pumps around site which limit energy requirements, installed light timers, decommissioning of unoccupied buildings, installing digital thermostats, and reducing heat in infrequently used buildings. In 2022, these energy savings projects saved approximately 211,861 litres of diesel fuel which offset approximately 6,042 tonnes of emissions (CO₂e). In 2020, Diavik installed a new food waste dehydrator. The new kitchen food waste dehydrator system decreases weight and volume of kitchen waste that would otherwise report to the incinerator by 90% reducing storage needs which will limit presence of wildlife attractants at site as the dehydrated product is odourless. The dehydrator removes moisture from kitchen waste and will help the incinerator burn more efficiently with the

correct ratio of wet waste to dry waste, reducing greenhouse gas emissions. In 2020, DDMI also installed a new more efficient waste incinerator. This new incinerator has a larger capacity and no requirement for scrubber water in the incineration process. It can handle all of the waste produced at site on a daily basis and reduces the amount of diesel required for incineration by 50% compared to the old incinerator. It can incinerate 5.7kg of waste per gallon of diesel, compared to the old incinerator which burns 2.2 kg/gal diesel and has 25% of the capacity of the new incinerator per burn cycle. The old incinerator is now used as a backup if needed.

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 (Coarse Processed Kimberlite/CPK) or a wetter fine sand (Fine Processed Kimberlite/FPK). The Plant used to make more fine than coarse sand, but the fine sand is harder to deal with at closure and takes up more space in the Processed Kimberlite Containment Facility (PKCF) because of the water in it. Beginning in 2016, Diavik tested new technology for removing water from Processed Kimberlite (PK) to increase the amount of CPK relative to FPK; the positive results from the trial which ended in 2018 allowed Diavik to continue to use this method. This change resulted in better use of PKCF storage capacity (more PK could be stored in the same area), improved ability to reshape the PKCF with coarse sand for closure, and improved ability to manage water in the PKCF.

6. Operational Activities & Compliance

The information below provides a summary of the operational activities that occurred during 2022 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 2022 operational and compliance activities include,

- Required SNP stations were sampled during each month. Where samples were unable to be obtained (e.g., safety concerns, weather, equipment issues), samples were re-scheduled or postponed. In 2022, 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. Monthly SNP reports are submitted to the WLWB.
- Under ice AEMP in April/May 2022 and an open water AEMP session in August/September 2022. 2022 was a comprehensive AEMP program.
- Air quality and dust deposition monitoring.
- Quarterly toxicity samples from stations 1645-18 and 1645-18B were collected in February, April, August, and December 2022.
- The open pit bottom elevations were at the 8844 (A154), 8862 (A418), 9240 (A21) level, or 156 m, 138 m below sea level (bsl), and 240 m above sea level (asl), respectively. For comparison, the surface of the water on Lac de Gras is 415.5 m asl.
- The total underground development for 2021 was 1,769 m, which included 386 m of lateral waste rock development, 17 m of vertical waste rock development, and 1,382 m of ore development.
- Collection pond dewatering activities were conducted on a regular basis in 2022.
- The average camp population for the year was 557.

Surface Projects

- PKC
 - CPK road deposition up to 473 m
 - PKC spigot pipe bench raise to 473 m
 - Remote dozing PKC cover trials off the South dam
 - Build Pond #4 containment berm
- NCRP
 - NCRP reslope, till and rock placement
 - North Country Till Pile re-mining
 - Raised North Haul Road
 - New ramp up to the NCRP established
 - Spillway chute constructed
- PKMW Project

- 10” HDPE Heat Trace installed
- Insulation kits installed on 10” and 12” HDPE piping
- Control Valve Shacks installed
- Launcher Shack installed
- Catcher Shacks installed
- Discharge Point established
- 12” HDPE pipelines installed from Control Valve Shacks down to A418 Discharge Point

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

- MLC Bays: West Ramp
- Zacon Doors: S8750
- Ventilation Bulkheads: S8850, A9140, A9080
- SLR Bulkheads for Level Closure: S8800, A8820, A8795
- Decommissioning of the A418 underground (December 2022)

Environmental Compliance

The 2021 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 21, 2022. A copy of the Deputy Minister’s letter on the 2021 Environmental Agreement Annual Report is provided in Appendix I.

- There was a total of 11 spills that were reported to the NWT spill line that occurred on the mine site or at exploration sites during 2022. 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 2022.
- 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.
- In 2022, DDMI responded directly to EMAB on comments and recommendations on the 2020 Environmental Air Quality Monitoring Report, the 2021 Wildlife Management and Monitoring Report, the 2021 AEMP TK Camp, TK Panel, and EMAB’s recommendation to monitor “yellow haze” (nitrogen dioxide in the air).
- In 2021, one concern from PA partners was raised regarding the findings of the 2021 AEMP TK Camp. This concern continued in 2022, and engagement is ongoing. Fish collection for health testing was undertaken in the summer of 2022, with further data collection, reporting, and engagement scheduled for 2023

GNWT-Department of Lands Inspections Findings

In 2022, the GNWT – Environment and Climate Change Officer performed 7 in-person inspections of the mine. The inspector identified 4 minor concerns over 7 inspections. Below is a summary of minor concerns noted by the inspector and the follow-up actions taken.

- **April 20:** Waste containers were not properly sealed at the diamond drill area.
 - Waste containers were properly sealed
- **July 13:** Minor amount of waste was identified at the Waste Transfer Area and Landfill that was not approved to be disposed of in these areas.
 - Removed unapproved waste from the Waste Transfer Area and Landfill and disposed of appropriately
- **August 31:** Aerosols and a minor amount of food waste was identified within the burn area while active incineration was occurring in the Waste Transfer Area.
 - Removed unapproved waste from the Burn Pit and disposed of appropriately
- **November 28:** Fuel in the Underground Tank Farm fuel transfer area was identified in the secondary containment trays outside the fueling pad, but the trays were filled with snow.
 - Snow removed from spill trays

In 2021, the GNWT – Department of Lands Resource Management Officer performed 7 in-person inspections of the mine and 1 virtual inspection in April 2021. In a letter from the GNWT regarding compliance and enforcement strategy, dated 19 March, 2020 it was decided that inspection reporting can be conducted using information provided by site personnel from the mine to complete inspection reports. For the virtual inspection, Diavik staff provided the inspector with photos and information to document the state of requested locations. This was necessary due to active covid-19 cases on site. The inspector identified 14 minor concerns over 8 inspections. Below is a summary of minor concerns noted by the inspector and the follow-up actions taken.

- **January 28:** snow observed in spill trays beneath parked equipment, no hydrocarbons seen in spill trays
 - Snow removed from spill trays
- **February 24:** Waste drum storage concerns at Waste Transfer Area
 - Sent on winter road backhaul, 2021
- **March 23:** Snow in spill pad compartments, full canisters of used fuel spill pads, small leak on refueling pump at South Tank Farm. Snow observed in spill trays at Metcon laydown, no hydrocarbons present.
 - Fuel pump fixed, all contaminated material removed to Waste Transfer area.
 - Snow removed from spill trays
- **September 23:** Hydrocarbon staining beneath decommissioned vehicles in the Metcon laydown, ponded water seen in the South Tank Farm containment berm.
 - Diavik in process of removing vehicles for progressive reclamation.
 - Water pumped out by vacuum truck
- **November 23:** One spill kit required restocking at refueling station

- Spill kit restocked.

In 2020, The GNWT – Department of Lands Resource Management Officer performed 5 in person and 2 virtual inspections. The inspector discovered 4 minor concerns over 7 inspections. Below is a summary of inspector concerns in 2020 and follow-up actions taken.

- **May 22:** Hydrocarbon staining on snow beneath a parked excavator in the Metcon laydown.
 - Snow and hydrocarbons cleaned up and sent to Waste Transfer Area landfarm. Spill trays already present and were cleaned of snow.
- **October 22:** Fuel barrels placed on Airport apron within 100m of Ordinary High Water Mark (OHWM) of waterbody.
 - Fuel barrels moved to lined barrel storage area east of Helipad away from OHWM
- **November 27:** Small leak in refueling hose at un-used refueling station. Water found in barrel meant to hold spill pads, and full black mega bags unlabelled.
 - Leaking hose removed from pipe and pipe capped to remove from service.
 - Barrel removed and black mega bags identified as shotcrete, subsequently used.

Planned 2023 Key Operational Activities;

- Closing of the A418 underground mine
- Begin deposition of processed kimberlite into the A418 underground mine workings (PKMW project)
- Continue efforts on placing cover materials for reclamation of the WRSA-NCRP
- Continue resloping of the WRSA-NCRP
- Re-mine of the WRSA-SCRP
- Begin cover construction on PKCF
- Complete production at A21 Open Pit
- Begin construction and development of A21 Underground Pit
- TK panel on site June 2023
- Begin construction of solar panel farm on PKCF West Cell
- Under-ice interim AEMP session in April/May and open water comprehensive AEMP session in August/September.
- AEMP TK Camp in summer
- Continued large bodied-fish health collection to follow up on 2021 AEMP TK Camp findings
- DDMI will continue to sample SNP stations as and when required by Water Licence WL2015L2-001.
- Wolverine track survey sessions, waste and compliance inspections, raptor surveys, record incidental wildlife sightings, and wildlife and air quality monitoring and dust deposition-monitoring programs.

References for Further Information

Water Quality

- Monthly Surveillance Network Program (SNP) Reports
- 2022 Reports: Type A Water Licence, Seepage Survey Report
- AEMP Study Design Plan, Version 6.1
- Three Year AEMP Results Summary for 2017 to 2019
- AEMP Reference Conditions Report, Version 2.2
- AEMP 2022 Annual Report (submitted to WLWB in March 2023. At time of EAAR publication the 2022 AEMP Annual Report has not gone for public review)

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 [online registry](#))
- TK Study for the Diavik Soil and Lichen Sampling Program, Tlicho Research and Training Institute (2013, <https://research.tlicho.ca/research/traditional-knowledge-study-diavik-soil-and-lichen-sampling-study>)

Air Quality

- Environmental Air Quality Management and Monitoring Plan (EMAB [online library](#))
- 2022 Environmental Air Quality Management and Monitoring Report (EMAB [online library](#))
- National Pollutant Release Inventory (<https://apps.ss.ec.gc.ca/inrp-npri/>)

Socio-economics /Sustainable Development

- [Environmental Agreement](#)
- 2022 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 ECC Minister Satisfactory Determination of the 2021 EAAR



December 21, 2022

Kyla Gray
Advisor, Environment
Diavik Diamond Mines (2012) Inc.
300, 5201 50TH STREET
YELLOWKNIFE, NT X1A 2P8
Kyla.Gray@riotinto.com

Dear Ms. Gray:

Satisfactory Determination of the 2021 Diavik Environmental Agreement Annual Report

On September 12, 2022 Diavik Diamond Mines (2012) Inc. (DDMI) submitted the 2021 Environmental Agreement Annual Report (Annual Report), required by section 12.1(a) of the Diavik Environmental Agreement (the Agreement), to the Government of the Northwest Territories, Department of Environment and Natural Resources (ENR), and the Environmental Monitoring Advisory Board (Advisory Board). On September 23, 2022, ENR distributed the Annual Report to all Parties.

An opportunity to review the Annual Report, was provided to the Aboriginal Peoples (as defined in the Agreement), the Advisory Board, Crown-Indigenous Relations and Northern Affairs Canada (CIRNAC), Environment and Climate Change Canada (ECCC), and Department of Fisheries and Oceans Canada (DFO). ENR received comments from ECCC and a satisfactory determination on the Annual Report from the Advisory Board (Attachment 1). No response was received from the Tłı̨chǫ Government, Łutsel K'e Dene First Nation, North Slave Métis Alliance, the Kitikmeot Inuit Association, CIRNAC, or DFO.

ENR has reviewed the Annual Report, comments submitted by reviewers, and provided additional comments. ENR is satisfied that the contents of the Annual Report are in accordance with Article 12.1 and finds the 2021 Annual Report to be satisfactory.

ENR encourages DDMI to address the comments from Parties. DDMI should ensure that concerns noted by Parties on the 2021 Annual Report are not carried forward into the 2022 Annual Report. ENR notes that previous concerns related to Diavik's Environmental Air Quality Monitoring and Management Plan under will be addressed under a separate review.

.../2

If you have any questions about this process please contact Jeffrey Cederwall, Environmental Assessment Analyst, at Jeffrey.Cederwall@gov.nt.ca.

Sincerely,

A handwritten signature in blue ink, appearing to read "Erin Kelly", is positioned above the typed name.

(for) Erin Kelly, Ph.D.
Deputy Minister
Environment and Natural Resources

Attachment

c. Grand Chief Jackson Lafferty
Tłıchǫ Government

Chief James Marlowe and Council
Łutsel K'e Dene First Nation

Edward Sangris and Council, Dettah
Yellowknives Dene First Nation

Chief Fred Sangris and Council, N'Dilo
Yellowknives Dene First Nation

Vice-President Marc Whitford
North Slave Métis Alliance

Stanley Anablak, President
Kitikmeot Inuit Association

Matthew Spence
Regional Director General
Crown-Indigenous Relations and Northern Affairs Canada

Charlie Catholique
Chairperson Environmental Monitoring Advisory Board

Shaleen Woodward
Principal Secretary
Executive and Indigenous Affairs

Martin Goldney
Secretary to Cabinet/Deputy Minister
Executive and Indigenous Affairs

Shawn McCann
Deputy Secretary, Indigenous and Intergovernmental Affairs
Executive and Indigenous Affairs

Fred Pedersen,
A/Executive Director
Kitikmeot Inuit Association

Annie Boucher
Executive Director,
Akaitcho Territory Government

Laura Duncan
Tłıchǫ Executive Officer
Tłıchǫ Government

Lisa Book
Senior Administrative Officer
Łutsel K'e Dene First Nation

Lena Black
Acting Chief Executive Officer
Yellowknives Dene First Nation

Geoff Clark
Director, Lands, Environment and Resources
Kitikmeot Inuit Association

Violet Camsell-Blondin,
Manager, Lands Regulation
Tłıchǫ Government

Laura Jane Michel,
A/Manager Wildlife, Lands and Environment
Łutselk'e Dene First Nation

Skye Lacroix
Project Officer
Kitikmeot Inuit Association

Johanne Black
Director, Environment
Yellowknives Dene First Nation

Ryan Miller
Remediation Project Coordinator
Yellowknives Dene First Nation

Jessica Hurtubise
Manager, Environment Department
North Slave Métis Alliance

Noah Johnson
Lead Regulatory Officer
North Slave Métis Alliance

John McCullum
Executive Director
Environmental Monitoring Advisory Board

Mohannad Elsalhy
Environmental Specialist
Environmental Monitoring Advisory Board

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

Megan Larose
Environmental Specialist
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Alasdair Beattie,
Team Leader, Fish and Fish Habitat Protection Program
Fisheries and Oceans Canada

Jody Small
Head Environmental Assessment North (NT and NU)
Environment and Climate Change Canada

Melissa Pinto
Senior Environmental Assessment Officer
Environment and Climate Change Canada

Gord Macdonald, Closure Manager
Diavik Diamond Mines (2012) Inc.

Kofi Boa-Antwi,
Superintendent, Environment
Diavik Diamond Mines (2012) Inc.

Debra Young, Administrative Assistant
North Slave Métis Alliance

Jeffrey Cederwall, Environmental Assessment Analyst
Environment and Natural Resources

Appendix II Summary of Adaptive Management & Mitigation Measures

Table I-A Adaptive Management & Mitigation

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
Waste	<ul style="list-style-type: none"> - Minimize waste management issues. - Maintained dump site for inert waste materials. - Waste rock is managed to reduce the chance of acid runoff. 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - During Inspector's visits in 2022, three minor concerns were raised regarding food waste/storage. - Bear visits on East Island remained similar to past. - Wolverine visits on East Island were similar to 2021 but lower than 2015-2020. - 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 2022. - Development of the WRSA-SCRCP continued in 2022 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 2022.

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
		<ul style="list-style-type: none">- 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.	<ul style="list-style-type: none">- 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.	

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
Water	<ul style="list-style-type: none"> - Effluent is treated before being discharged to Lac de Gras or is recycled. - Ammonia levels within water licence limits. - Prevent seepage water entering Lac de Gras. - Decrease freshwater use. - Have fish and water quality that are safe for use. 	<ul style="list-style-type: none"> - Review loading and blasting procedures and materials for opportunities to reduce ammonia levels in pit and underground water. - Re-use North Inlet water as supply water to facilities at the mine site. - In 2009 the treatment plant was expanded to increase treatment capacity to accommodate increased flows from the underground. The expansion components are a “twin” of the original construction, except sand filters were not required to achieve water licence compliance and were not installed in the expansion. NIWTP treatment capacity was increased by bypassing sand filters. - Evaluated the use of treated effluent for dust suppression. - Conducted a study with the University of Alberta to evaluate the biological removal of ammonia and other nitrogen compounds in the North Inlet. - Special Effects Studies (SES) are completed when unexpected effects are measured during the AEMP. - Established Action Levels to respond to findings of various parameters of the AEMP. - Evaluate seepage prevention or interception methods upstream or downstream of areas of concern. - Investigate, assess and repair site infrastructure where seepage issues arise, and where possible. - Improve turbidity curtain anchors in response to elevated TSS levels due to deep water trench and site-specific exposure issues. - Retrofit Process Plant to change the waste stream ratio; reduce fine PK and increase coarse PK. 	<ul style="list-style-type: none"> - The North inlet provides retention time for mine water before treatment, allowing for ammonia reduction by natural attenuation; mine water discharge located far away from treatment plant intake. - Influent and effluent in the NIWTP is monitored consistently via instream sensors (immediate feedback) and the SNP for parameters that are indicators of water treatment effectiveness. - Daily sampling of pit, underground & effluent water to produce trends & track compliance. - Plant able to automatically stop discharging treated water that meets or exceeds DDML's <i>internal</i> limits (which are set below the water licence limits). - Ammonia Management Plan followed to minimize ammonia loss. - Batch and paste plants utilize treated effluent as a water source instead of fresh water. - Sumps and pumps installed underground to collect and transport water to the North Inlet. - Ability to re-use water from the North Inlet and PKCF, prior to treatment, to reduce freshwater intake volumes. - Frequent visual inspections of areas downstream of dams, dikes & ponds. - Water intercepted with the use of wells and pumps installed in PKCF dams. - Repairs to damaged seepage prevention infrastructure e.g. 2016 Pond 5 dam liner repair, 2016 Pond 4 dam repair, 2019 repair of liner Zone 7 East PKCF Dam, and various collection well repairs in the PKCF. - Source water (North Inlet, Collection Ponds, PKCF) chemistry around site are monitored as part of the SNP. 	<ul style="list-style-type: none"> - Ammonia levels in 2022 were well below the licence limit of 12 mg/L. - Ammonia levels in mine water and effluent have remained low over time. - Parameters regulated in the Water Licence in NIWTP effluent remain well below discharge criteria. - No seepage was identified downstream or outside of runoff collection areas in 2022. This included seepage from waste rock storage areas, water retention dikes and dams, or other rock stockpiles or areas constructed with mined/quarried rock. - Over 850 toxicity tests have been done on treated effluent since 2002 and have been non-toxic. - Slimy sculpin study in 2022 showed the sculpin fish were healthy, in good physical condition and reproducing. - Action Level response plans for AEMP results are being identified and implemented. - PK trial to reduce amount of water in fine PK and increase coarse PK completed and successful; methods implemented to Plant operations since 2018. - TSS exceedance during A21 construction; management actions in response to exceedance effective for remainder of construction season. - 2013 removal of SNP stations: surface runoff stations did not detect seepage from NCRP or PKCF up to summer 2013. 2009 investigation confirmed water was tundra runoff. Groundwater wells had been dry or frozen since installation. PKCF dam seepage is collected by interception wells and downstream collection ponds.

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
		<ul style="list-style-type: none">- Preventative work-stop measures and a TARP were established for A21 construction to reduce potential for TSS exceedances.- Clarification of Licence requirement for water against the PKCF dams with WLWB.- Seepage monitoring stations changed in response to observations over the years.	<ul style="list-style-type: none">- SES to determine mercury concentration/availability in fish and sediments within Lac de Gras.- Evaluation of hydrocarbon levels in North Inlet.- Separation of water collection systems underground 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.- 2013 – Surface seepage monitoring stations and some groundwater wells removed from SNP to focus monitoring efforts on upstream water interception features. Deactivated seepage monitoring stations include: 1645-20, 1645-21, 1645-22, 1645-23, 1645-24, 1645-25, 1645-26. Deactivated Groundwater stations include: 1645-28, 1645-29, 1645-31, 1645-32. Groundwater well 1645-33 remains active.	

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
Wildlife	<ul style="list-style-type: none"> - Minimize wildlife-related compliance issues. 	<ul style="list-style-type: none"> - Wildlife monitoring programs are adjusted based on results of previous years of studies. - Review of wildlife monitoring programs has been done with all 3 mines, Monitoring agencies, government and communities. - Study area expanded for caribou based on potentially larger mine zone of influence than predicted. - Participation in a regional wolverine DNA study with Ekati and GNWT to gain further insight on the wolverine population in the Lac de Gras region and around the mine. - Monitoring methods for grizzly bear changed to consider a more regional objective, while being safer for field crews; DNA study on the population in the Lac de Gras region. - Pit wall & infrastructure surveys for raptors that may nest in the pit or on other structures was added to the raptor monitoring program. - Raptor surveys changed to align with the North American Peregrine Falcon Survey. - Nests relocated or work activity ceased in response to wildlife presence. - Bird mortality monitoring conducted after installation of wind turbines. - Building installed to contain new incinerator and prevent wildlife attraction. - New Waste Transfer Area designed to minimize opportunities for scavengers to enter the area and access attractants/rewards. - Storage procedure for empty waste bins to minimize wildlife incidents. - Inclusion of community members in wildlife 	<ul style="list-style-type: none"> - Orientation and environmental awareness training related to wildlife on site is provided to all employees. - Employees notify Environment department of any wildlife sightings; these are then recorded. - Site-wide radio notifications for caribou presence on island. - Waste inspections conducted regularly. - Waste management system in place. - Caribou are deterred away from high-risk areas, such as the airstrip, as required. - Bears are deterred from the mine site, as required. - Problem wildlife is relocated or destroyed, in consultation with the GNWT. - Wildlife reporting system is in place site-wide, for wildlife observations and incidental observations are recorded. - Wildlife have the 'right-of-way' on site. - No hunting or fishing is permitted by employees. - Buildings are skirted and higher-risk areas are fenced or bermed in an effort to deter animal access. - Exterior man door handles have been covered with metal plates to prevent animal entry into buildings. - Wind turbines equipped with flashing beacons designed to reduce wildlife impacts. - Mine-altered pond water levels are kept low to discourage use by waterfowl. - Re-vegetation research has been on-going for 10 years and will help to determine habitat available for wildlife after closure. - TK Panel focuses on wildlife concerns when considering closure planning options and monitoring programs. 	<ul style="list-style-type: none"> - Mine-related wildlife incidents and mortalities have remained low over the years. - Two caribou deterring events occurred during 2022. - No grizzly mortalities due to mining or euthanizations occurred in 2022. - No caribou mortalities or injuries caused by mining in 2022. - Two rough-legged hawks were discovered deceased; one along the roadway on top of the A21 dike, and another in the middle of the road on the A21 dike. The cause of death for both rough-legged hawks is unknown.

Aspect	Compliance	Adaptive Management Response	Mitigative Measures	Effectiveness of Measures
		<p>monitoring programs to allow consideration of both TK and science when evaluating impacts.</p> <ul style="list-style-type: none"> - Recommended reduction in PVP and lichen monitoring frequency based on results and slow growth of species in sub-arctic conditions. - Raptor survey SOP updated to include Bank Swallow and Barn Swallow birds, as well as other bird species listed in the Species at Risk Act (SARA). 	<ul style="list-style-type: none"> - 1 km caribou exclusion zone implemented for all surface blasts. - Revised storage procedure for empty waste bins on site. 	
Dust	<p>- 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).</p>	<ul style="list-style-type: none"> - 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. 	<ul style="list-style-type: none"> - 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). Expanded to include parking lots, roads near buildings and laydowns in 2022. - 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. 	<ul style="list-style-type: none"> - Control of dust from crusher, small blast areas and roads. - Dust suppressant continued to be used in 2022. - 2021 dustfall values were slightly higher on average than the 2021 values but generally within the range of historical data collected for the mine. The 2022 annual dustfall rates were less than the Alberta Ambient Air Quality objective for dustfall at industrial locations. As expected, dustfall rates decreased with distance from the mine. - 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 Quality	<ul style="list-style-type: none"> - Measure consumption of applicable sources of GHGs - primarily diesel combustion. - Meet Internal GHG Reduction Targets. - Report GHG Emissions to regulatory agencies and within Rio Tinto. 	<ul style="list-style-type: none"> - Evaluate new technologies and equipment that may allow for pollution controls/reduced emissions. - Wind power generation research. - Determine energy draws, optimal use and options to reduce power requirements for buildings on site. - Various fuel consumption reduction initiatives, e.g. no idling. - Review of air quality monitoring program and equipment requirements. - Added monitoring of TSP in 2013 with 2 on-site stations (not monitored for reporting purposes after 2018). - Conducted energy audits on site buildings in 2014. - Determine optimal operating temperatures for the underground mine. - Evaluate energy efficient equipment options. - Evaluate and optimize transportation schedules and volumes to/from site. 	<ul style="list-style-type: none"> - Use of low sulphur diesel. - Archaeological assessment for areas where wind turbines installed. - Installation of Delta V fuel consumption monitoring system for all key power consuming buildings on site. - Boiler optimization program. - Installation of 4 wind turbines, integrated into the power distribution system, to reduce fuel consumption. - New more efficient waste incinerator that uses less diesel. - "Waste" heat from powerhouse generators used to heat facilities connected to powerhouse (camps, maintenance shops, etc.). - Underground air quality monitoring conducted. - Improving efficiencies of plant operations to reduce power draw. - 2 TSP monitors installed at the mine site in 2013 (not 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 include incinerator ash and scrubber sampling procedures. - New water fill station installed at A21 in 2019 for watering roads in the A21 area. 	<ul style="list-style-type: none"> - DDMI reports GHG emissions annually to appropriate regulators and internally to Rio Tinto. - The wind turbines offset fuel consumption by 4.2 million litres of diesel in 2022. -Heat recovery, installation of variable frequency drive pumps and heat reduction in buildings offset 211,861 litres of diesel in 2022.

**Appendix III TK Panel Session #14 and #15 Recommendations and DDMI
Responses to Session #13**

DDMI Traditional Knowledge Panel Session 14 Processed Kimberlite Containment, North Inlet, and Closure Criteria

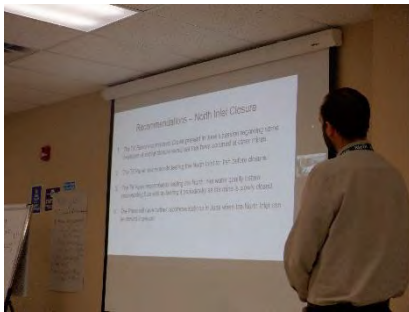


Photo Credit: Det'on Cho Environmental



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June 2, 2022

EXECUTIVE SUMMARY

Since 2011, the Traditional Knowledge (TK) Panel has guided Diavik Diamond Mines (2012) Inc. (DDMI) to consider Traditional Knowledge appropriately and meaningfully in operations, environmental management, and monitoring as well as closure planning at the Diavik Diamond Mine Site. The TK Panel consists of Elders and youth from Diavik's five Participation Agreement communities.

The TK Panel gathers at least once a year to discuss issues and concerns so Diavik can be made aware of their input and ensure that it is considered in project operations and closure activities. There have been 14 TK Panel sessions held. The most recent was from April 20th to 22nd, 2022 at the Tree of Peace Friendship Center in Yellowknife.

The purpose of this session was to explore the current closure plan for the PKC area and the North Inlet and what TK-based monitoring during and after closure could look like. This session had various goals related to the Mine's closure. These goals guided the preparation of the workshop agenda and included:

- Presenting the plan for closure of the Processed Kimberlite Containment area
- Presenting the plan for closure of the North Inlet
- Discussing a TK Monitoring Program at Diavik, post-closure.
- Receiving TK Panel feedback and recommendations on the session key themes.

This report summarizes the events of the 14th TK Panel session and outlines the recommendations put forth by the Panel regarding the closure of Diavik. The recommendations presented in this report are the same recommendations presented by the Panel participants to DDMI on the final day of the TK Panel Session. To contextualize the recommendations, they are presented in this report with a description of the rationale. This approach allows for DDMI to better address the recommendation, improve recommendation implementation tracking, and allow future participants to understand the nature of past recommendations.

This Executive Summary is not intended to be a stand-alone document, but a summary of the following Report. It is intended to be used in conjunction with the scope of services and limitations described therein.

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
DCE	Det'on Cho Environmental
DDMI	Diavik Diamond Mines (2012) Inc.
KIA	Kitikmeot Inuit Association
LKDFN	Lutselk'e Dene First Nation
Mine	Diavik Diamond Mine
NSMA	North Slave Métis Alliance
PA	Participation Agreement
PKC	Processed Kimberlite Containment
TK	Traditional Knowledge
YKDFN	Yellowknives Dene First Nation

1.0 BACKGROUND

Since 2011, the Traditional Knowledge (TK) Panel has guided Diavik Diamond Mines (2012) Inc. (DDMI) to consider Traditional Knowledge appropriately and meaningfully in operations, environmental management, and monitoring as well as closure planning at the Diavik Diamond Mine Site (Mine). The TK Panel consists of Elders and youth from Diavik's five Impact Benefit Communities. One male Elder, one female Elder, and one youth are selected by each of Diavik's five First Nations stakeholder groups:

- Kitikmeot Inuit Association (KIA)
- Łutselk'e Dene First Nation (LKDFN)
- North Slave Metis Alliance (NSMA)
- Tłıchǫ Government
- Yellowknives Dene First Nation (YKDFN).

The TK Panel gathers at least once a year to discuss issues and concerns so Diavik can be made aware of their input and ensure that it is considered in project operations and closure activities. There have been 14 TK Panel sessions held. The most recent was on April 20th to 22nd, 2022 at the Tree of Peace Friendship Center in Yellowknife to consider options and criteria for closure of the Processed Kimberlite Containment (PKC) facility, the North Inlet, and to consider what a TK monitoring program may look like.

2.0 SESSION PURPOSE AND OVERVIEW

The purpose of this session was to explore the current closure plan for the PKC area and the North Inlet and what TK-based monitoring during and after closure could look like.

The PKC closure plan has changed since the last time the TK Panel discussed it. Before this, the plan involved a pond in the middle of the PKC that would be over top of the fines. However, since then it was recognized that the pond water levels could lower naturally over time unless maintained. The new plan involves letting the permafrost freeze the processed kimberlite fines and placing a cover of rock over the fines to protect wildlife. The TK Panel was asked to consider what they would look for to determine this cover to be safe for animals and be working as intended.

The North Inlet is an area that receives water from across the Mine Site and has a wastewater treatment plant to treat this water before releasing it into Lac de Gras. Most of the water that is sent to the wastewater treatment plant is groundwater that enters the open pits. This will no longer happen when the pits are filled with water. The remaining water that is sent to the North Inlet is water that contacts the Mine Site. Diavik intends to keep the wastewater treatment plant as one of the last remaining buildings on-site to keep treating the Mine Site water. In the future, and after closure, it is anticipated that the Mine Site water will no longer need to be treated and that the North Inlet could be reconnected with Lac de Gras. The TK Panel was asked to think about what they would judge the water on for it to be acceptable for reconnection to the North Inlet and what would make reconnection unacceptable.

As evidenced by the TK Panel, the incorporation of TK into Diavik's processes is of importance to both Participation Agreement (PA) groups and Diavik. To this end, Diavik is interested in establishing a TK-based program to observe the Mine Site after closure and judge if closure plans are performing as intended. A caribou monitoring plan developed by the Tłıchǫ Government was suggested as a starting point for discussion. The TK Panel was asked to weigh in on what this program could look like and what it would consider as part of the monitoring approach.

2.1 Session #14 Overview

In addition to the 11 participants, the facilitation team, and DDMI representatives, there were also 5 staff members from each of the Tłıchǫ Government, YKDFN, LKDFN, KIA, and 2 interpreters in attendance.

Table 1 TK Session #14 Attendees

Affiliation	Name	Role
Det'on Cho Environmental (DCE)	Peter Clarkson	Facilitator
	Brenda Michel	Facilitator
	Claire Tincombe	Facilitator/Transcriber
Diavik Diamond Mine Inc. (DDMI)	Myra Berrub	DDMI Staff
	Gord Macdonald	DDMI Staff
	Sean Sinclair	DDMI Staff
Kitikmeot Inuit Association (KIA)	Barbara Adjun	Participant
	Jack Kaniak	Participant
	Vikki Niptanatiak	Participant (youth)
	Skye Lacroix	Observer/KIA Staff member
Łutsel K'e Dene First Nation (LKDFN)	Albert Boucher	Participant
	Łutsel K'e Dene Elder*	Participant
	Sierra Catholique	Participant (youth)
	Sara Boucher	Interpreter
	Laura Jane Michel	Observer/LDFN Staff
North Slave Métis Alliance (NSMA)	North Slave Métis Elder*	Participant
Tłıchq Government	Joe Rabesca	Participant
	Violet Camsell-Blondin	Observer/Tłıchq Government Staff
Yellowknives Dene First Nation (YKDFN)	Peter D Sangris	Participant
	Mary-Jane Francis	Participant
	Kelsey Martin	Participant (youth)
	Lena Drygeese	Interpreter
	Ryan Miller	Observer/YKDFN Staff Person
Environmental Monitoring Agency Board (EMAB)	Dylan Price	Observer/EMAB Staff

*These participants requested anonymity.

3.0 SESSION GOALS AND ACTIVITIES

This session's purpose was for members of the TK Panel to receive information on various aspects of closure planning at Diavik, provide their Traditional Knowledge perspective, and issue recommendations back to the representatives from Diavik.

Session #14 had various goals related to the Mine's closure. These goals guided the preparation of the workshop agenda and included:

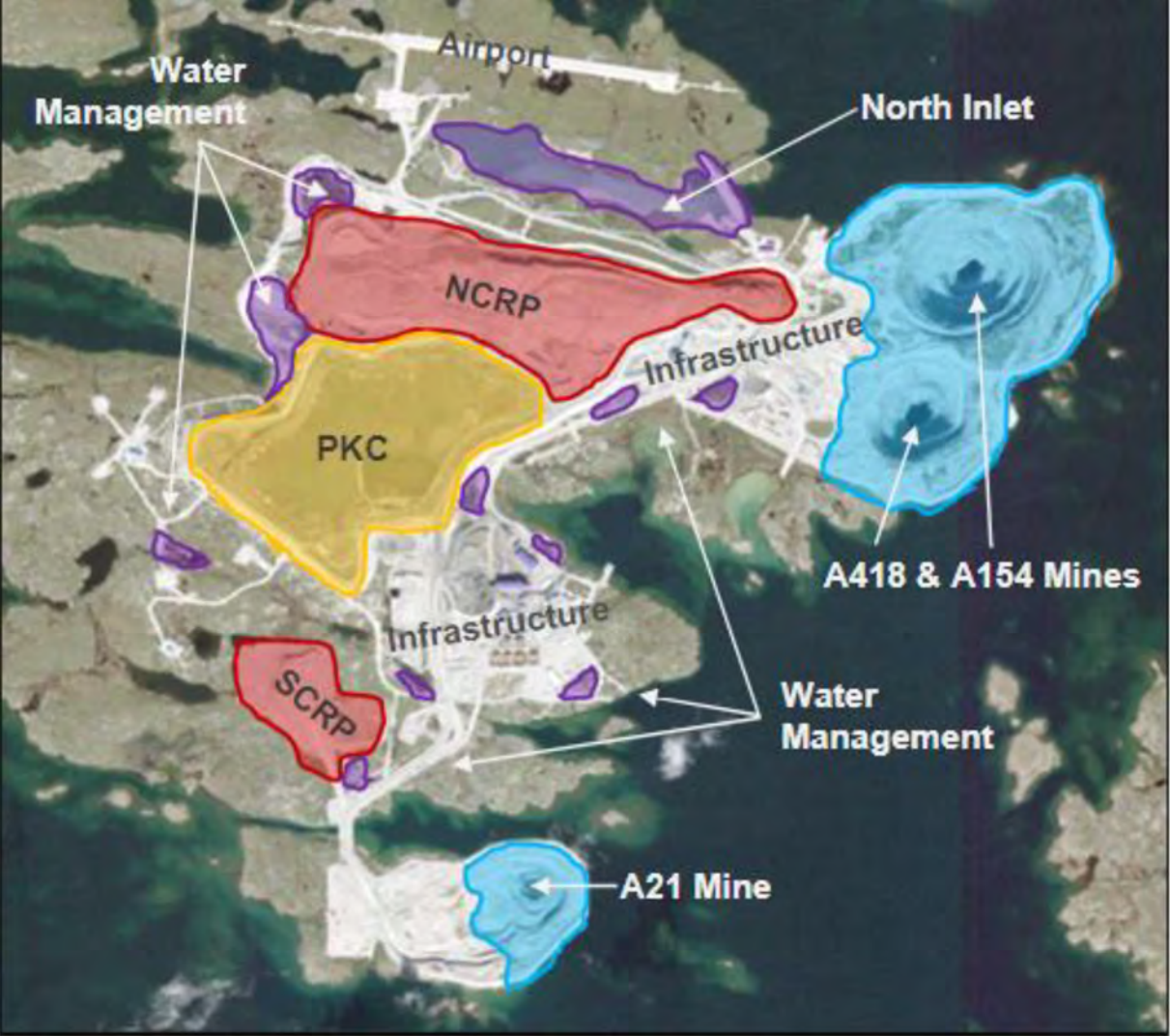
- Presenting the plan for closure of the Processed Kimberlite Containment area
- Presenting the plan for closure of the North Inlet
- Discussing a TK Monitoring Program at Diavik, post-closure.
- Receiving TK Panel feedback and recommendations on the session key themes.

Due to COVID-19 restrictions at Diavik, the TK Panel met at the Tree of Peace Friendship Centre in Yellowknife instead of travelling to the Mine site. The session was held in a large event room to enable social distancing. However, due to the location being away from Diavik, Panel members were not able to view areas of the site in person and instead relied on images, videos, and descriptions of Mine features.

Though some participants have been attending the TK Panel for many years, this TK Panel was the first one for some of the participants. This was also the first TK Panel for the new facilitation team. As such, the first day began with an icebreaker designed so that participants had the opportunity to meet one another and share stories of similar experiences. All participants, visitors, and presenters were asked to review and sign an Informed Consent form (**Appendix A**).

The session began with a review of the agenda with participants and any adaptations were made. A copy of the agenda can be found in **Appendix B**. To bring new participants up to speed, the facilitation team outlined the goal of the TK Panel and the expected outcomes of the sessions. DDMI began with an overview of the site, including the presentation of a fly-over video outlining the features of the Mine site. **Figure 1** presents the Closure Planning overview map which was presented to the TK Panel on the first day of the session. Additionally, DDMI presented on the planned submission of the Final Closure and Reclamation Plan to the Wek'èezhìi Land and Water Board, Diavik's Closure Goals and Objectives, and engagement with communities completed in the last year.

Figure 1 Map of Diavik Mine Site Features



Mine Workings: Remove mobile equipment and hazardous materials, flood mines with water from Lac de Gras; dikes to be breached to allow full reconnection with big lake.

Rock Piles: Sloped sediment/till + rock cover to freeze potentially acid generating rock within NCRP; wildlife access ramps for safe passage on SCRPs.

Processed Kimberlite Containment: Rock cover to separate PK from people and wildlife and create a stable surface.

North Inlet and Water Management: Reconnect natural drainages to allow surface runoff flow into Lac de Gras. Allow natural bioremediation of hydrocarbon impacted sediments for as long as possible before North Inlet reconnection takes place.

Infrastructure: Removal of all mine infrastructure, disposal of all inert materials in on-site landfill unless they can be practically recycled, donated or sold; targeted revegetation; investigate alternative options where some infrastructure left behind to fulfill alternative future use.

4.0 REPORT OUTLINE

This report summarizes the events of the 14th TK Panel session and outlines the recommendations put forth by the Panel regarding the closure of Diavik. The recommendations presented in this report are the same recommendations presented by the Panel participants to DDMI on the final day of the TK Panel Session. To contextualize the recommendations, they are presented in this report with a description of the rationale. This approach allows for DDMI to better address the recommendation, improve recommendation implementation tracking, and allow future participants to understand the nature of past recommendations.

The appendix includes the following:

- A copy of the Informed Consent Form (**Appendix A**)
- A copy of the Meeting Agenda (**Appendix B**)
- DDMI Presentation material (**Appendix C**)
- Verbatim transcription notes from each day of the TK Panel Session (**Appendix D**)
- Photos from the TK Panel Session (**Appendix E**).

5.0 PROCEEDINGS: KEY QUESTIONS, THEMES, AND GUIDANCE POINTS

To solicit feedback on the topics of interest for the session, DCE's facilitation team, along with DDMI representatives, developed a list of guiding questions. The following guiding questions were reviewed, adapted, and discussed during the session:

- How would you look at this landscape or water in the future and view it?
- What are your thoughts about the proposed cover plan? What do you want to see, or not want to see, in the future to say that this cover is working? What questions do you have?
- What would you want to see to make sure the cover and PKC closure is good?
- What are your thoughts about the proposed closure plan? What questions do you have?
- What would you like to see that would let you recommend reconnecting the North Inlet to Lac de Gras? What could you see that would cause you not to recommend reconnection?

6.0 PROCEEDINGS: RECOMMENDATIONS

6.1 Processed Kimberlite Containment Cover

DDMI representatives presented information on the planned PKC Rockfill cover plan. This rock cover is intended to separate people and wildlife from the Processed Kimberlite (PK). Originally, the plan was to leave a pond of water in the middle of the extra-fine PK. However, the plan has since been adapted to place a rockfill cover over the extra-fine PK after it freezes instead of leaving a pond. The new approach will speed up freezing and keep it frozen as it will provide insulation to the extra-fine PK layer. The TK Panel has made recommendations in the past about the need to create barriers to prevent caribou from travelling on the PKC, including the positioning of large boulders around the PKC to act as a physical barrier for wildlife.

A copy of the presentation can be viewed in **Appendix C**.

Following the presentation, the facilitation team used the following questions to prompt discussion and input from the Panel:

- What are your thoughts about the proposed cover plan?
- What do you want to see, or not want to see, in the future to say that this cover is working?
- What questions do you have?
- What would you want to see to make sure the cover and PKC closure are good?

These questions prompted discussion among Panel members resulting in the recommendations presented in **Table 2**. For future information on the discussion, refer to the transcriptions in **Appendix D**.

Table 2 PKC Cover Recommendations and Context

Number	Topic	Recommendation	Rationale/Context
14.1	PKC Animal Deterrents	The TK Panel recommends Diavik place large boulders around the processed kimberlite containment cover to keep the animals from going through it.	Boulders may be seen as a deterrent to large animals, such as caribou, and may make the animals opt to go around the PKC Cover rather than over/through it.
14.2	PKC Monitoring during Freezing	The TK Panel recommends Diavik monitor the freezing of the processed kimberlite containment cover by using thermistors.	Monitoring the freezing of the PKC Cover is important for understanding when the landscape might be safe for wildlife.
14.3	PKC Monitoring after Freezing	The TK Panel recommends Diavik continue to monitor the frozen processed kimberlite cover even after the Mine closure to ensure that it is not attracting animals and not leaking into surrounding waterways.	Ongoing monitoring is recommended to ensure that climate change is not affecting the stability of the PKC Cover.
14.4	Future Recommendations	The Panel will have further recommendations in June when the PKC Cover can be viewed in person.	Without being able to see the PKC area due to the session occurring off-site, the TK Panel agreed that they will likely have more recommendations when the PKC, and the landscape in which it is situated, can be viewed in person.

6.2 North Inlet Closure Criteria

DDMI representatives presented on the proposed plan for the closure of the North Inlet. The North Inlet is an important part of water management at Diavik and acts as a holding pond for surface and underground water. The water from the North Inlet is recycled for use in the process plant or is treated before being discharged into Lac de Gras. Solids that are removed from the water during the treatment process are put into the inlet where they settle to the bottom.

This process means that hydrocarbons (i.e., diesel fuel, hydraulic fluids, and greases) settle at the bottom of the North Inlet. DDMI is relying on bioremediation, the process of allowing naturally occurring organisms, like bacteria, to break down the hydrocarbon contaminants. The number of bacteria present in the environment has been assessed and it has been determined that there are enough hydrocarbon-eating bacteria to support the bioremediation of the inlet. The bacteria now need time to eat the contaminants. DDMI estimates that in 9 years there will be 50% fewer hydrocarbons.

The plan for contaminated surface materials was also presented and included 3 options:

- Leave in place and enhance natural bioremediation or cover to prevent animal or plant interaction
- Dig up and transport to the landfill where it will be covered and frozen in place
- Dig up and transport via Winter Road for disposal in a solid waste facility.

As for closing the North Inlet, the current plan is to fully reconnect it to Lac de Gras. The water in the North Inlet will be treated and discharged into Lac de Gras. Once water treatment is no longer needed on site and sediment in the North Inlet meets closure criteria, the plan is to breach the East Dam and allow for water, fish, and boats to get through. The secondary plan is to install a rocky material between the North Inlet and Lac de Gras to allow water to flow through, but not fish.

A copy of the presentation can be viewed in **Appendix C**.

Following the presentation, the facilitation team used the following questions to prompt discussion and input from the Panel:

- What are your thoughts about the proposed closure plan?
- What would you like to see that would let you recommend reconnecting the North Inlet to Lac de Gras?
- What questions do you have?
- What could you see that would cause you not to recommend reconnection?

These questions prompted discussion among Panel members resulting in the recommendations presented in **Table 3**. For future information on the discussion, refer to the transcriptions in **Appendix D**.

Table 3 North Inlet Closure Recommendations and Context

Number	Topic	Recommendation	Rationale
14.5	Fish in the North Inlet	The TK Panel recommends testing the North Inlet for fish before closure.	Though fish were removed from the North Inlet when it was created, the TK Panel would like to see it tested again for the presence of fish before it is reconnected to Lac de Gras.
14.6	Water Testing	The TK Panel recommends testing the North Inlet water quality before reconnecting it as well as testing it periodically as the Mine is slowly closed.	The water quality in the North Inlet was a concern for participants. Before reconnection, the Panel would like to know that the contamination levels have reached an acceptable amount.
14.7	Future Recommendations	The Panel will have further recommendations in June when the North Inlet can be viewed in person.	Without being able to see the North Inlet area due to the session occurring off-site, the TK Panel agreed that they will likely have more recommendations when the North Inlet, and the landscape in which it is situated, can be viewed in person.

6.3 TK Monitoring Approach

DDMI representatives presented their commitment to including a Traditional Knowledge-based approach program for post-closure. Currently, DDMI is working with representatives of the Tłıchq Government to learn from past work and years of implementing the Ekwq Nàxoèhdee K'è Program.

The purpose of the TK Monitoring Approach is to understand and measure how closure activities are achieving closure goals through a TK perspective. This approach will be in collaboration with science-based monitoring and, where appropriate, each program may verify the results of the other. The primary focus for the monitoring would be on caribou, particularly herd health and habitat, and water as well as other aspects of the ecosystem.

DDMI envisions the program including walking the closure landscape and surrounding areas as well as boating the shorelines of the East Island and surrounding areas. Observations would be documented and linked to time and location. To add to the observations, DDMI proposes simultaneous collection of water samples for chemical analysis.

DDMI plans to have this monitoring occur every 2-3 years for a span of 7-10 with 10-15 TK monitors in attendance.

A copy of the presentation can be viewed in **Appendix C**.

Following the presentation, the facilitation team used the following question to prompt discussion and input from the Panel:

- Is this a foundation that you think we can build on to develop the program?

These questions prompted discussion among Panel members resulting in the recommendations presented in **Table 3**. For future information on the discussion, refer to the transcriptions in **Appendix D**.

In general, there was confusion regarding the language used to describe the approach, and as a result, the discussion had more to do with scientific monitoring rather than TK Monitoring. DDMI is considering new wording for the TK Monitoring approach, and it therefore may be represented differently in future sessions. See details in **Section 7.0** regarding the next steps.

Table 4 TK Monitoring Recommendations

Number	Topic	Recommendation	Rationale
14.8	Length of Monitoring	The TK Panel recommends monitoring occur for longer than 10 years, potentially up to 30.	TK is a long-term practice therefore a long-term monitoring approach is needed to allow for the TK holders to assess how successful closure has been.
14.9	Number of Monitors	The TK Panel recommends bringing 10-15 people out on the land over the next 30 years, 1-2 times per year to monitor the site after closure.	Inviting 10-15 people to act as monitors allows for the transmission of information between Elders and youth and allows for various perspectives.
14.10	Fish Camp	The TK Panel recommends hosting TK camps and fish camps at various locations around Lac de Gras, during different seasons, rather than just at one location.	The fish camp is a valued program offered by DDML. However, Panel members would like to see the fish camp occur at different locations around Diavik to allow for the examination of fish in different water bodies.
14.11	Use of Scientific Language	The TK Panel recommends using simple language as well as scientific language when conducting TK Monitoring Programs.	This is to ensure Elders can understand and youth can learn the scientific terms for different parts of their environment.
14.12	Community Monitoring Programs	The TK Panel recommends inviting pre-existing community-based monitoring programs, such as Ni Hadi Xa, to Diavik as part of the development of the TK Monitoring approach. This should occur every year, potentially every season.	The TK Panel recognizes that there are several programs in existence that have similar objectives to what DDML is looking for in the TK Monitoring Approach. The Panel does not want to “reinvent the wheel” but would like to see the Approach pull inspiration from pre-existing programs and the success they have had.
14.13	Inclusion of Youth and Elders	The TK Panel recommends incorporating youth and Elders into the TK Monitoring Program to pass on information, including information about the use of plants as medicine.	The transfer of knowledge to younger generations is a key aspect of TK. The Panel feels that youth should be present when Elders are discussing TK so that information is not lost.
14.14	Wildlife Monitoring	The TK Panel recommends monitoring all animals after closure.	The Panel expressed that there is often an emphasis on caribou protection when discussing closure monitoring. However, Panel members emphasized that monitoring all animals is important, not just caribou.
14.15	Additional Monitoring	The TK Panel recommends monitoring dust, vegetation, and berries around Diavik as part of the TK Monitoring Program.	There was discussion about the dust visible around Diavik on calm days and the potential for that dust to have landed on berries and vegetation in the area. During this discussion, it was noted that testing the berries around Diavik has not been part of past environmental monitoring programs and was only introduced in the summer of 2021 due to a recommendation from the TK Panel.

Number	Topic	Recommendation	Rationale
14.16	Lac de Gras Sediment	The TK Panel recommends testing the water in Lac de Gras and the sediment at the bottom.	Regarding the presence of dust at Diavik, the TK Panel is interested in how this dust settles in the sediment at the bottom of Lac de Gras.
14.17	Past Recommendations	The TK Panel recommends that DDMI look at all the TK Panel Session notes and recommendations and use those as guidance for a document summarizing what will be done for closure and the TK Monitoring Program.	Some participants on the Panel noted that some of the past recommendations made by Panel members are often repeated. A summary report on the recommendations that have/have not been implemented would help to reduce repetition.
14.18	Indigenous Environmental Monitors	The TK Panel recommends hiring Indigenous people who will work at Diavik for 2 weeks on and 2 weeks off as Environmental Monitors.	Diavik has employed Indigenous monitors in the past for wolverine monitoring during the winter. The TK Panel would like to see an Indigenous person working on-site, following a 2-week on and 2 weeks off schedule, throughout the year rather than just seasonally.
14.19	Coppermine River	The TK Panel recommends including testing of water and fish in the Coppermine River.	The fish of the Coppermine River have not been tested by Diavik. This is a concern for Panel members, particularly those representing KIA. The Panel would like to see testing (fish and water quality) done not just at the mouth but up the river.

6.4 General Recommendations

During a discussion of the 3 primary topics for the session, several other recommendations were made that apply to Diavik's closure but are outside the session's main topics. These recommendations were recorded throughout the session and are listed here as "General Recommendations". These general recommendations are regarding various topics from Mine infrastructure to community engagement.

Additionally, at the request of the participants, DDMI presented the current wildlife monitoring program in operation at Diavik as well as the chemical composition of the processed kimberlite. A copy of these presentations can be found in **Appendix C**. Some of the recommendations below pertain to these supplementary presentations.

Table 5 General Recommendations

Number	Topic	Recommendation	Rationale
14.20	Water Treatment Plant	The TK Panel recommends allowing the water treatment plant to be the last building to close and running all remaining water use on-site through the plant.	The water treatment plant is seen as a very useful and necessary part of the Mine. It is recommended that the plant be the last building to close and that all water, even little ponds, should be put through the treatment plant before closure.
14.21	Information Review Time	The TK Panel recommends providing participants with information before the meeting to ensure enough time for review.	Some information presented at the TK Panel, particularly the TK monitoring guidelines, was not provided to participants with much time for review and formulation of comments. Where possible, the Panel would like to see this type of material beforehand to better prepare their thoughts and opinions.
14.22	Fish Camp	The TK Panel Recommends hosting the fish camp every -2 years rather than every 3 years.	Currently, every 3 years DDMI hosts a fish camp which provides participants an opportunity to examine the health of the fish around the Mine. This camp is seen as very valuable and therefore participants expressed an interest in attending the camp more frequently.
14.23	Community-based monitoring programs	The TK Panel recommends that DDMI fund community-based monitoring programs.	During the discussion about the TK Monitoring Program, the Panel noted several community-based monitoring programs that already exist in the various PA communities. These programs are often looking for funding.
14.24	Communication with Communities	The TK Panel recommends that DDMI improve communication with communities about the timing of upcoming events or community meetings and provide information ahead of time for review. Better communication about where to find information about closure is needed.	Members of the Panel noted past instances where DDMI representatives travelled to their communities to present information, however, community members were not aware that they were coming. Improved communication from DDMI would allow for better community involvement.
14.25	Secondary translator	The TK Panel recommends that DDMI bring 2 translators per language to TK Panel Sessions.	Providing translation services can be very tiring. Having a secondary translator would allow translators to take breaks throughout the day.
14.26	Closure Examples	The TK Panel recommends DDMI present in June's session regarding some examples of similar closure exercises that have occurred at other Mines.	The Panel is interested to know how DDMI is using other Mine site closure procedures to guide the closing of Diavik and if these procedures have been successful at other Mine sites.
14.27	Remaining Structures	The TK Panel recommends leaving some accommodation structures on site.	This recommendation was made as it would help land users in the area in case of an emergency.

7.0 TK PANEL NEXT STEPS

The next TK Panel Session is currently planned for early June. The next session will be hosted at Diavik and will be a return to the former process where workshop discussion is accompanied by time spent on the Mine site visiting and viewing features around the Mine.

The June session will focus on TK Monitoring, including establishing a framework and name for the approach. Additionally, participants will be able to view the structures (i.e., the PKC and the North Inlet) discussion in Session #14 and provide further recommendations after being able to view the site with their own eyes.

8.0 CLOSURE

Following 2.5 years of interruption due to COVID-19, the 14th TK Panel Session was a successful return to the important work done by the Panel. The Panel provided valuable recommendations on several critical closure processes at the Mine site. These recommendations were pertaining to the PKC cover, North Inlet Closure, a TK Monitoring approach, and various general recommendations.

DCE sincerely appreciates the opportunity to have assisted with this project and if there are any questions, please do not hesitate to contact the undersigned by phone at 867.873.6333.

Report prepared by:
Det'on Cho Environmental



Claire Tincombe, BA (Honours)
Managing Director

Report prepared by:
Det'on Cho Environmental



Jennifer Loughery, PhD, P.Biol.
Project Manager

Report reviewed by:
Det'on Cho Environmental



Peter Clarkson, B.Sc.WBio., M.E.Des.
Lead Facilitator

APPENDIX A

Informed Consent Form



Informed Consent Form

I (name) _____, give permission for Det'on Cho Environmental (DCE) and its technical service provider Hemmera Envirochem Inc (Hemmera), a wholly owned subsidiary of Ausenco Canada Inc. to record my comments, Traditional Knowledge (TK; also known as Indigenous Knowledge, IK), Traditional Environmental Knowledge (TEK), and Traditional Land Use Knowledge (TLU) for the Diavik Diamond Mine Inc Traditional Knowledge Panel #14.

Participation in the Project is voluntary and will include a 3-day TK Panel Session. The aim of these sessions is to promote the sharing of TEK and TLU information. The sessions will be documented through notes, photographs and may be audio/video taped for future reference. The results of this workshop will be shared in a summary final report and other project communications. Your comments and photographs may be used in the final report.

You do not have to answer any questions you do not want to, and you can withdraw your participation at any time (up until the Final Report is finalized) by letting the researchers know if and how you would like any of your contributions to date to be used.

We will undertake care to keep your contributions protected and secure. Information and contributions gathered during information sharing sessions will be securely stored and accessed only by Project researchers. Computer files (including audio/video digital files, if applicable) will be password protected and/or saved in restricted, access restricted folders on the Hemmera server. Written files will be kept in a locked file cabinet in the DCE/Hemmera, Yellowknife office. DCE and Hemmera will not use your contributions for any purpose other than for the Project.

We ask that you decide how you would like your contributions to appear in the workshop's findings. One of our ways of appreciating and acknowledging your contributions is to list your name as a contributor to the Project. **Please check 'yes' or 'no' to the following questions.**

Question	Yes	No
Do you consent to your name being used in the final report to reference your contributions to the discussion?		
Do you consent to your Indigenous Organization* affiliation being used in the final report beside your name? *Recognizing that you were chosen as a representative of your community but that your opinions are solely your own.		
Do you consent to pictures of you, taken during the session, being used in the final report?		

Signature of Participant

Date

I believe the person signing this form understands the study and the nature of their involvement. I will only apply their contributions according to the conditions stated above.

Signature of Researcher(s)

Date

Thank you for your time and contributions

APPENDIX B

Session Agenda

DIAVIK TRADITIONAL KNOWLEDGE PANEL SESSION

DRAFT AGENDA

Dates:	April 20-22, 2022
Location:	Tree of Peace Friendship Center, Yellowknife
Presented by:	Diavik Diamond Mine Inc. Det'on Cho Environmental
File:	106573-01
Re:	Session #14 – Processed Kimberlite Containment, North Inlet Closure and TK Monitoring

Wednesday April 20, 2022

- 8:30 am Opening Prayer and Welcome, Round Table Introductions, Review of Draft Agenda, Overview of Session Purpose: 'How would you look at this landscape or water in the future and view it?'
Review of Process
Housekeeping Items (ongoing COVID awareness: face masks, sanitizer, physical distancing)
- 9:30 am Ice Breaker – Diversity Bingo
- 10:00 am Introducing the 2022 Facilitation Team
- 10:30 am Break
- 10:45 am Presentation: Site Overview, Closure and Reclamation Plan Update, Community Engagement
Group Discussion
- 12:00 pm Lunch
- 1:00 pm Presentation: Process Kimberlite Containment Cover
Guiding Question: What are your thoughts about the proposed cover plan? What do you want to see, or not want to see, in the future to say that this cover is working? What questions do you have?
- 2:30 pm Break
- 2:45 pm Guiding Question: What would you want to see to make sure the cover and PKC closure is good?
- 4:30 pm Close

Thursday April 21, 2022

- 8:30 am Opening
- 9:00 am Presentation: North Inlet Closure
Group Discussion: What are your thoughts about the proposed closure plan? What questions do you have?
- 10:30 am Break
- 10:45 am Guiding Question: What would you like to see that would let you recommend reconnecting the North Inlet to Lac de Gras? What could you see that would cause you not to recommend reconnection?
Group Discussion
- 12:00 pm Lunch
- 1:00 pm Presentation: TK Closure Monitoring Approach
Guiding Question: Is this a foundation that you think we can build on to develop the program?
Group Discussion
- 2:30 pm Break
- 2:45 pm Continued Group Discussion
- 4:30 pm Close

Friday April 22, 2022

- 8:30 am Opening
- 9:00 am Review draft recommendations from previous days
Group Discussion
- 10:30 am Break
- 10:45 am Presentation of Recommendations to Diavik
Group Discussion
- 12:00 pm Lunch
- 1:00 pm Presentation: Review of recommendations from all sessions
Discussion
- 2:00 pm Potentially adding additional community representatives to the panel
- 2:30 pm Break
- 2:45 pm Next Steps/Next Session: TK Closure Monitoring
- 3:15 pm Closing Circle & Prayer
- 3:45 pm Close

APPENDIX C

Presentation Material

RioTinto

Diavik Traditional Knowledge Session #14

April 20th-22nd, 2022

Tree of Peace, Yellowknife

Welcome Agenda

Opening Prayer and Introductions

1. Setting the context:

Site Overview video

Closure and Reclamation Plan update

Community Engagement

2. Processed Kimberlite Containment Cover

3. North Inlet Closure

4. TK Monitoring Approach

5. Recommendations



“As a group here, we all come together to try to express our feelings, to give back to Diavik our traditional knowledge.”

– Bobby Algona, KIA Elder on the TK Panel



Part 1: Setting the Context

Site Fly-Over Video (Footage from Fall 2021)

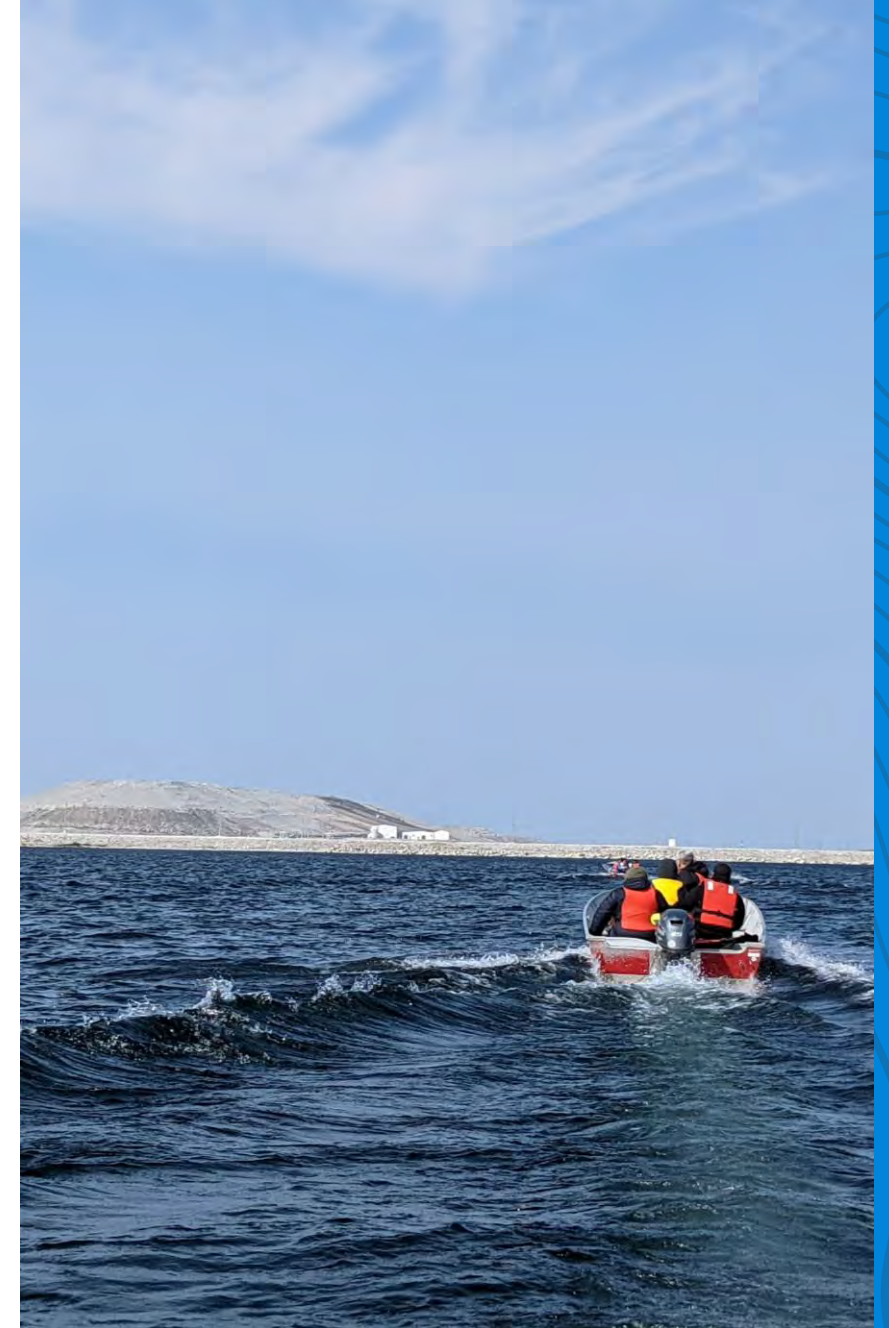


Final Closure and Reclamation Plan Update

TK Monitoring

Diavik plans to submit its Final Closure and Reclamation Plan to the Wek'èezhìi Land and Water Board by end of 2022.

The Plan will include a framework for Closure TK Monitoring.



Diavik Closure Goals: Developed with input from communities and approved by WLWB

1. Land and water that is physically and chemically stable and safe for people, wildlife and aquatic life.
2. Land and water that allows for traditional use.
3. Final landscape guided by Traditional Knowledge.
4. Final landscape guided by pre-development conditions.
5. Final landscape that is neutral to wildlife – being neither a significant attractant nor significant deterrent relative to pre-development conditions.
6. Maximize northern business opportunities during operations and closure.
7. Develop northern capacities during operations and closure for the benefit of the North, post-closure.
8. Final site conditions that do not require a continuous presence of mine staff.



Main Closure Objectives – Land

Closure objectives relating to closure landforms, demolition, and site surface

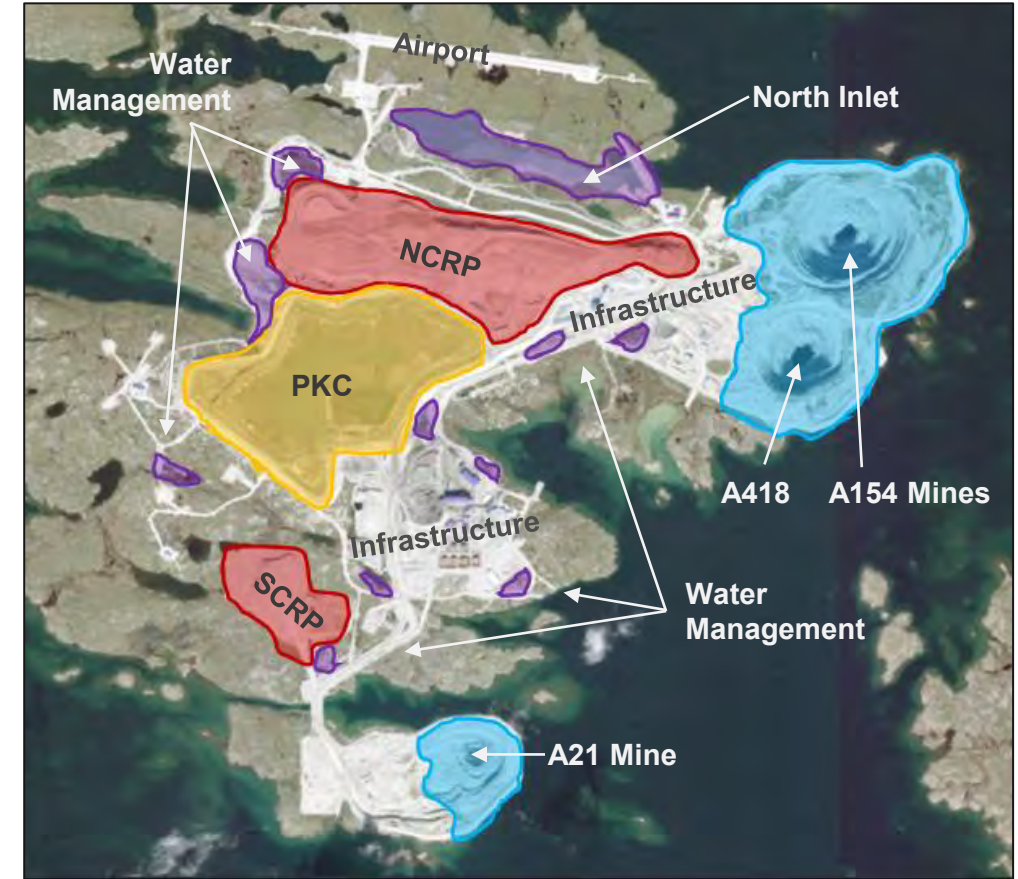
Component	Objectives (Summarized)
Site Wide	<ul style="list-style-type: none">- Dust levels safe for people, veg, aquatic life, wildlife- Re-vegetation for priority areas- Site landscape / mine areas safe for wildlife and people- Mine areas undisturbed during operations remain undisturbed at closure
Waste Rock Till Area	<ul style="list-style-type: none">- Stable, safe slopes that match the look of the natural landscape- Physically stable PKC area to prevent processed kimberlite from entering surrounding landscape or water
PKC Facility	<ul style="list-style-type: none">- No adverse effects on people, wildlife or vegetation from closure of PKC
Mine Infrastructure	<ul style="list-style-type: none">- On-site landfill safe for people, wildlife and environment- Prevent remaining infrastructure from contaminating land or water- Provide opportunities for communities to re-use infrastructure where possible

Main Closure Objectives – Water

Closure objectives relating to closure of pond water, site drainages, and pit lakes

Component	Objectives (Summarized)
Site Wide	<ul style="list-style-type: none">- Surface runoff and seepage water that is safe for humans and wildlife.- Surface runoff and seepage water that will not cause harm to aquatic life in LDG or the Coppermine River.- Ground surface designed to follow pre-development drainage patterns.
Open pit, underground, and dike areas	<ul style="list-style-type: none">- Water quality in the pit and dike area should be similar to LDG, not harm aquatic life, and not have adverse affects on water uses in LDG, the Coppermine River, or of groundwater.- Pit walls and shorelines must be stable to avoid risk of failure and impacts to people, wildlife, or aquatic life.- Wildlife are kept safe during filling of the pits.
North Inlet Waste Rock area	<ul style="list-style-type: none">- Water quality and sediment quality in the North Inlet that is safe for aquatic life, wildlife, and people, and as similar to LDG as possible.- Water and sediment quality that will not cause adverse effects on water uses in LDG, or the Coppermine River.- Physically stable banks to limit risk of failure that could impact people or wildlife.- Contaminated soil/waste disposal areas that do not cause seepage/runoff that contaminates land or water.

Closure Planning Overview



Mine Workings: Remove mobile equipment and hazardous materials, flood mines with water from Lac de Gras; dikes to be breached to allow full reconnection with big lake.



Rock Piles: Sloped sediment/till + rock cover to freeze potentially acid generating rock within NCRP; wildlife access ramps for safe passage on SCRCP.



Processed Kimberlite Containment: Rock cover to separate PK from people and wildlife and create a stable surface.



North Inlet and Water Management: Reconnect natural drainages to allow surface runoff flow into Lac de Gras. Allow natural bioremediation of hydrocarbon impacted sediments for as long as possible before North Inlet reconnection takes place.



Infrastructure: Removal of all mine infrastructure, disposal of all inert materials in on-site landfill unless they can be practically recycled, donated or sold; targeted revegetation; investigate alternative options where some infrastructure left behind to fulfill alternative future use.

Engagement with Communities

Indigenous Community	Regulatory and Closure Update Engagement	PKMW Engagement Protocol (Measure 5)	PKMW Cultural Water Quality Criteria Workshop (Measure 2)
KIA	Completed (June 30, 2020)	Approved (August 18, 2020)	Completed (October 13-14, 2020)
LKDFN	Completed (June 10, 2020)	Executed (July 10, 2020)	Completed (September 24, December 3, 2020)
NSMA	Completed (May 26, 2020)	Executed (July 30, 2020)	Completed (September 22-23, 2020)
TG	Completed (June 23, 2020)	TG feedback; DDMI draft 2 and TłıchoꞐ Waghàà Ełeyatits'eedı (September 5 / 11, 2020)	Completed (November 5, 12-13, 2020)
YKDFN	Completed (May 28, 2020)	Approved (February 17, 2022)	Completed (June 3-4, 2021)

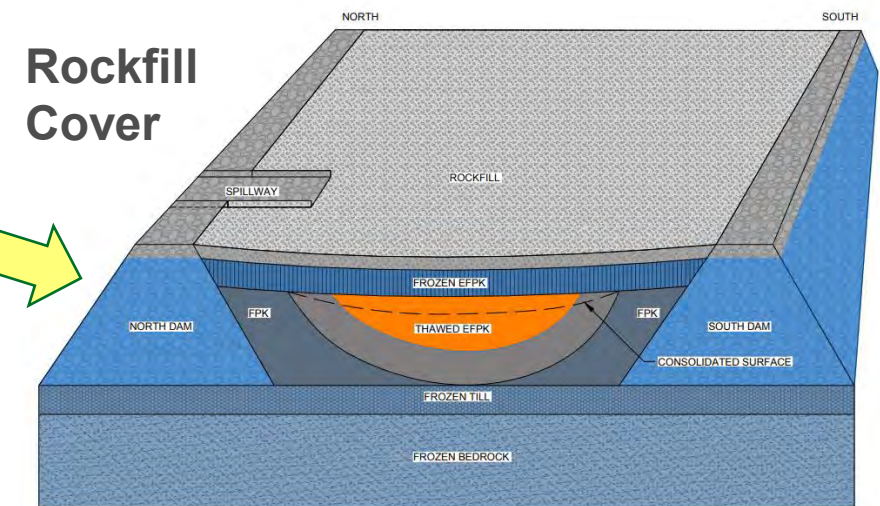
Indigenous Community	Regulatory and Closure Update Engagement	PKMW Engagement Protocol (Measure 5)	PKMW Cultural Water Quality Criteria Workshop (Measure 2)
DKFN	Completed (December 7 & 11, 2020)	Executed September 10, 2021	Completed (May 12-13, 2021)
NWTMN	Completed (September 1, 2020)	Approved September 14, 2021	Initial meeting completed (May 3-4, 2021)
FRMG	Completed (August 24, 2020)	in draft	Proposed



Part 2: Processed Kimberlite Containment Cover

Processed Kimberlite Containment: Rockfill Cover

Rock cover on outer beach to separate processed kimberlite (PK) from people and wildlife. Access and cover of soft inner area is most technically challenging aspect of mine closure. Original plan was to leave a pond of water in the middle over the extra-fine PK (EFPK). Updated plan is to place a rockfill cover over extra-fine PK after it freezes.



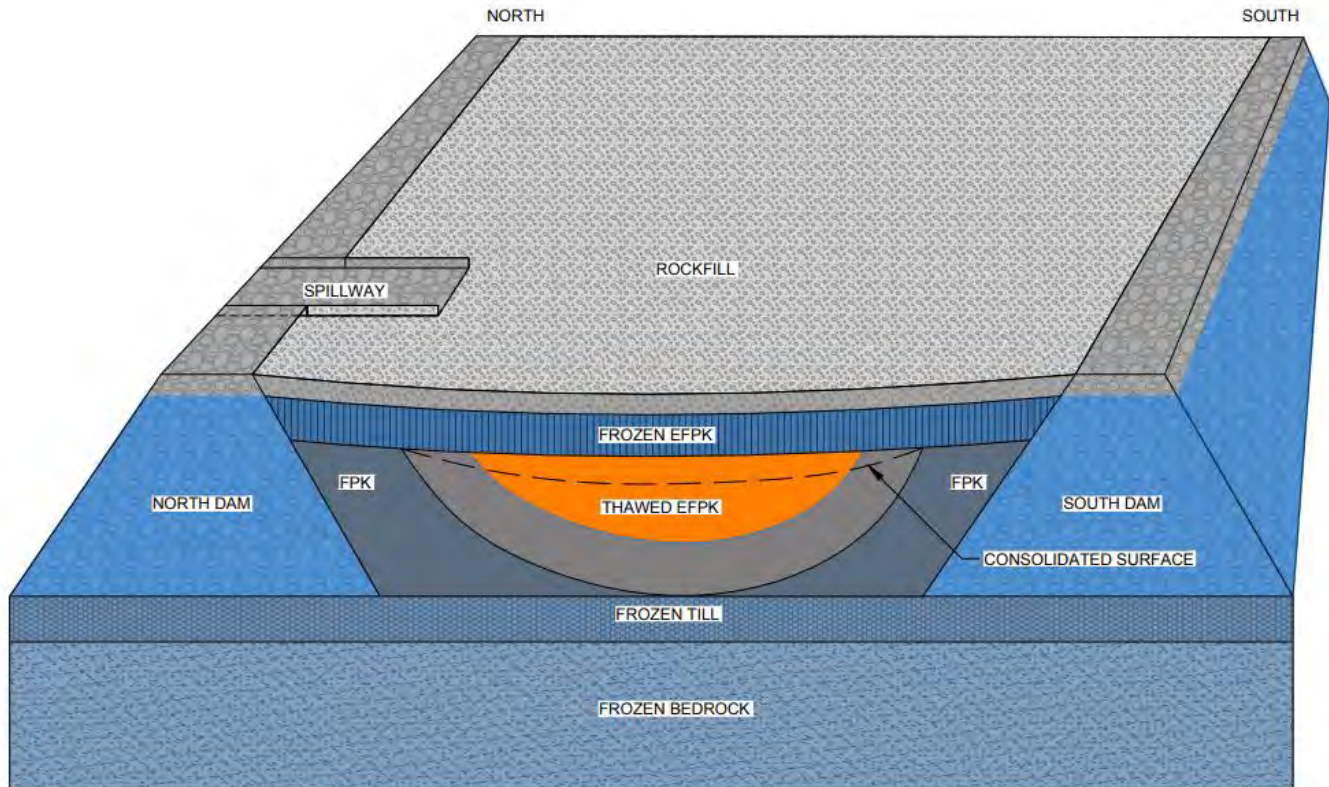
PKC Rockfill Cover

Rockfill can be placed on fine PK material (outer beaches) any time of year.

Rockfill can be placed on extra-fine PK when sufficiently frozen (similar to ice).

Freezing increases with no pond in facility (our new approach). Freezing will speed up with the rockfill cover.

Water from snowmelt or rainfall will travel over the rock surface to the spillway.



PKC: TK Panel Engagement and Recommendations

Scope	Date	Summary Recommendations
TKP#6: Processed Kimberlite Containment at Closure Report (rec 6.1-6.22)	24-28 Oct 2013	- PKC cover to support insulation and revegetation; reclaim existing landforms; remove EFPK or demonstrate safe; ensure shoreline stability and support/create safe pathways for wildlife/caribou; restock with fish and bugs; support/create waterways to encourage fish habitat and fish migration
TKP#7: Focus on Re-vegetation (rec 7.7)	14-18 Aug 2014	- create barriers to prevent caribou travel from NCRP to PKC
TKP#8: Focus on Reefs & Water Monitoring (rec 8.11)	2-4 Dec 2015	- monitor and filter streams from PKC
TKP#9: Focus on Caribou & NCRP Closure Plan (rec 9.8)	13-16 May 2016	- place boulders around PKC pond
TKP#11: Options for Processed Kimberlite (rec 11.1-11.3)	10-14 May 2018	- move EFPK ("slimes") from PKC to underground mine areas; revisit PKC closure plan; leave beach materials and rough kimberlite
TKP#12: Options for Pit Closure (rec 12.1-12.2)	12-16 Sep 2019	- place new and existing (in PKC) EFPK to underground mine areas

PKC Questions

What are your thoughts about the proposed cover plan?

What do you want to see, or not want to see, in the future to say that this cover is working?

What questions do you have?

What would you want to see to make sure the cover and PKC closure is good?



Part 3: North Inlet Closure

North Inlet during Operations

The North Inlet is an important aspect of high-volume Operational water management and acts as a holding pond for surface and underground water.

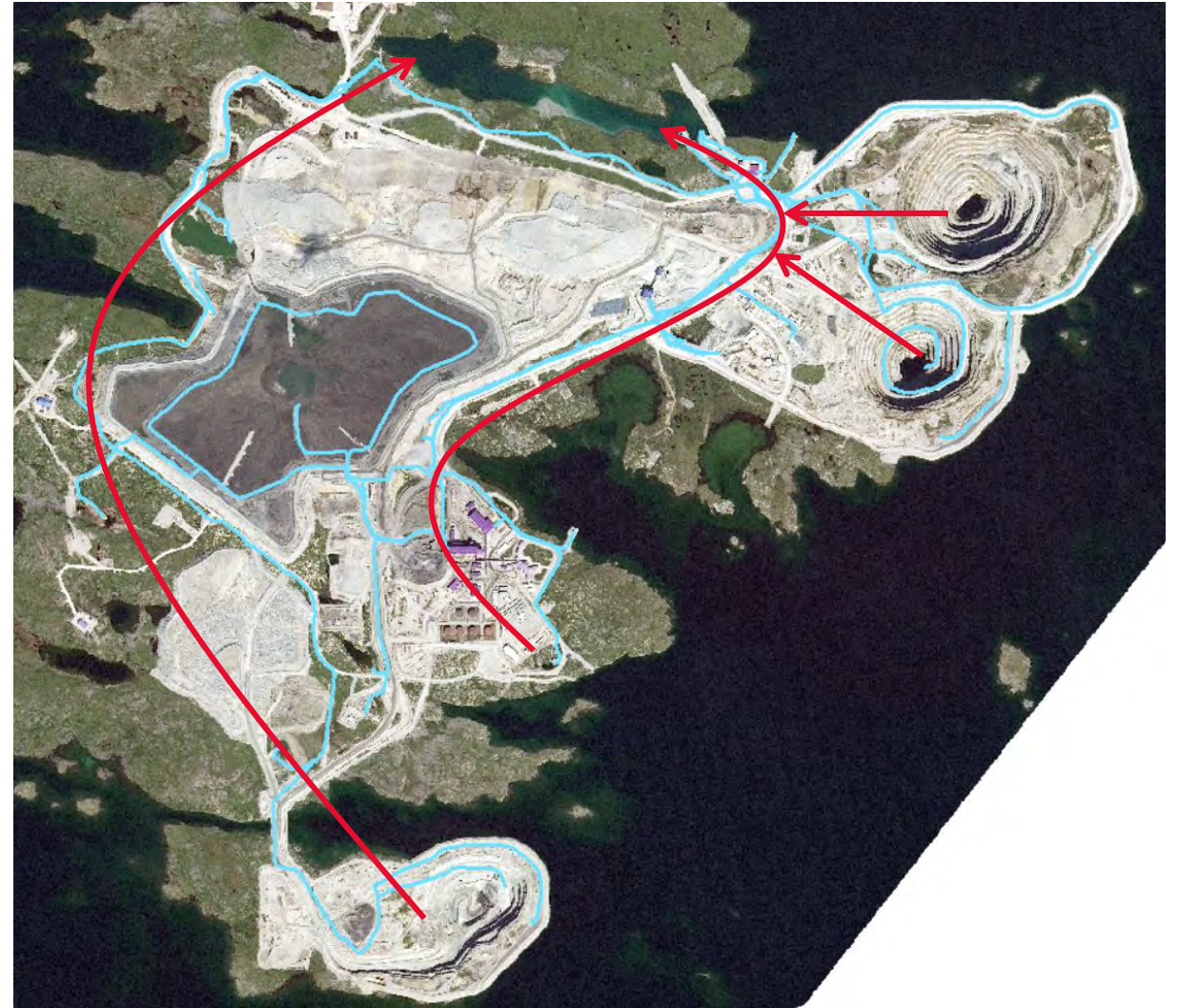
Water from the inlet is recycled for use in the process plant or treated before being discharged into Lac de Gras. Solids removed from the water during the treatment process are put into the inlet where they settle to the bottom of the inlet.



Largest sources of water for NI



Water pipelines on site

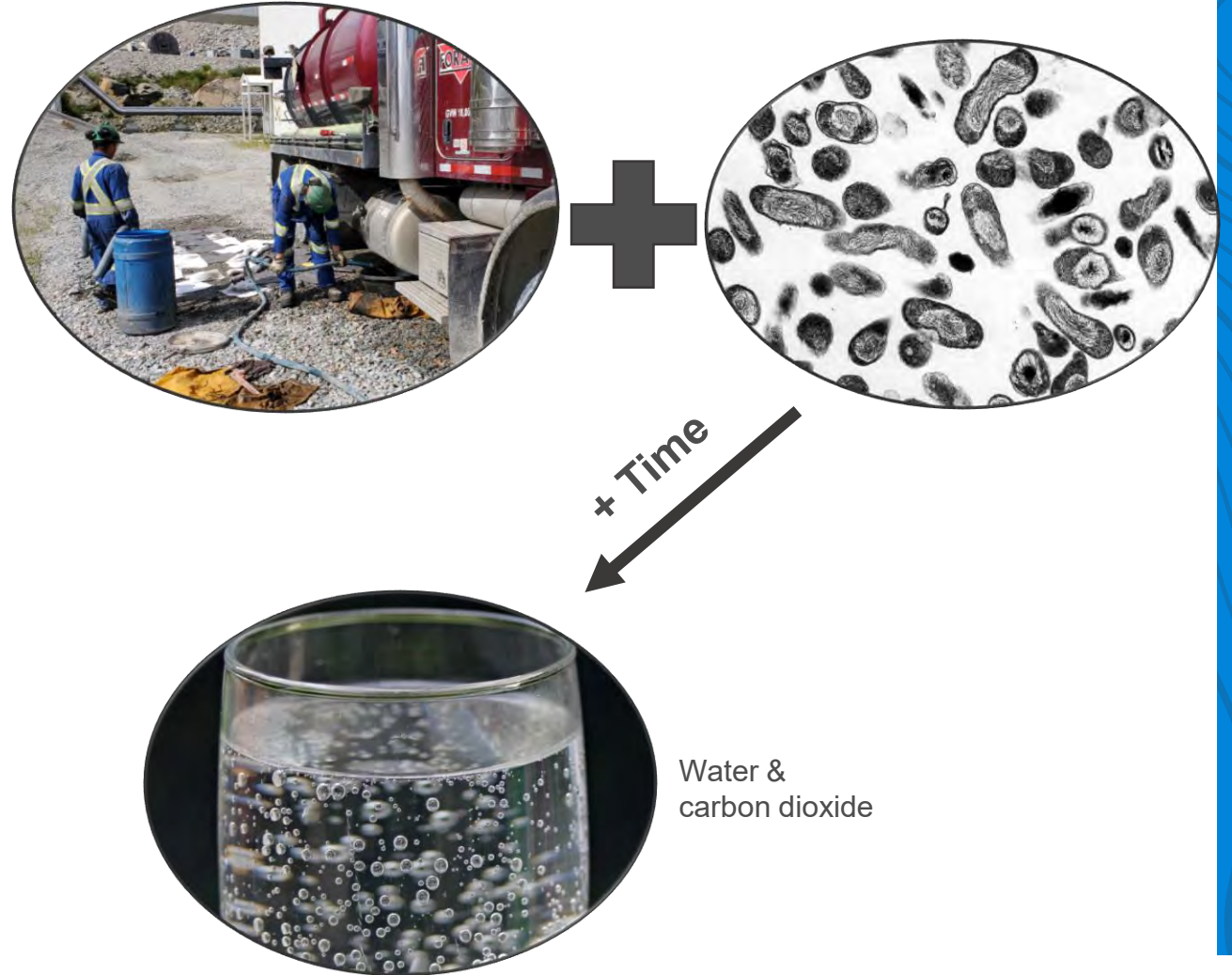


Hydrocarbons and Bioremediation

A hydrocarbon is an organic compound of hydrogen and carbon. Small compounds can be gases (e.g. propane) and big compounds can be thick liquids (e.g. grease). At Diavik it refers to liquids: diesel fuel, hydraulic fluids, greases, etc.

Bioremediation is the process of allowing naturally occurring organisms like bacteria to break down contaminants. Bacteria can use the big hydrocarbon molecules as food, eventually breaking them down to carbon dioxide and water.

This natural process occurs at the North Inlet and on land. This process can be further enhanced on land through a process called “land farming”.



Natural Bioremediation of Inlet Sediments

Water treatment produces solids that absorb hydrocarbons. The solid residue settles onto the bottom of the inlet.

Already confirmed to be enough nutrients and oxygen to support current community of hydrocarbon-eating bacteria.

No additional actions are needed, we just need to give the bacteria time to work.

As a conservative estimate, in nine years there will be a 50% reduction in hydrocarbons.



Contaminated Surface Materials

At closure contaminated materials will be treated in different ways depending on the degree and type of contamination:

1. Leave in place and either:
 - a) Land farm the material to enhance natural bioremediation
 - b) Cover with rock to prevent animals and plants from interacting with the material
2. Dig up and transport to the landfill where it will be covered and frozen in place
3. Dig up and transport via Winter Road for disposal in an accredited solid waste facility



Waste transfer area

Closing the North Inlet

Current plan is to fully reconnect the North Inlet with LDG

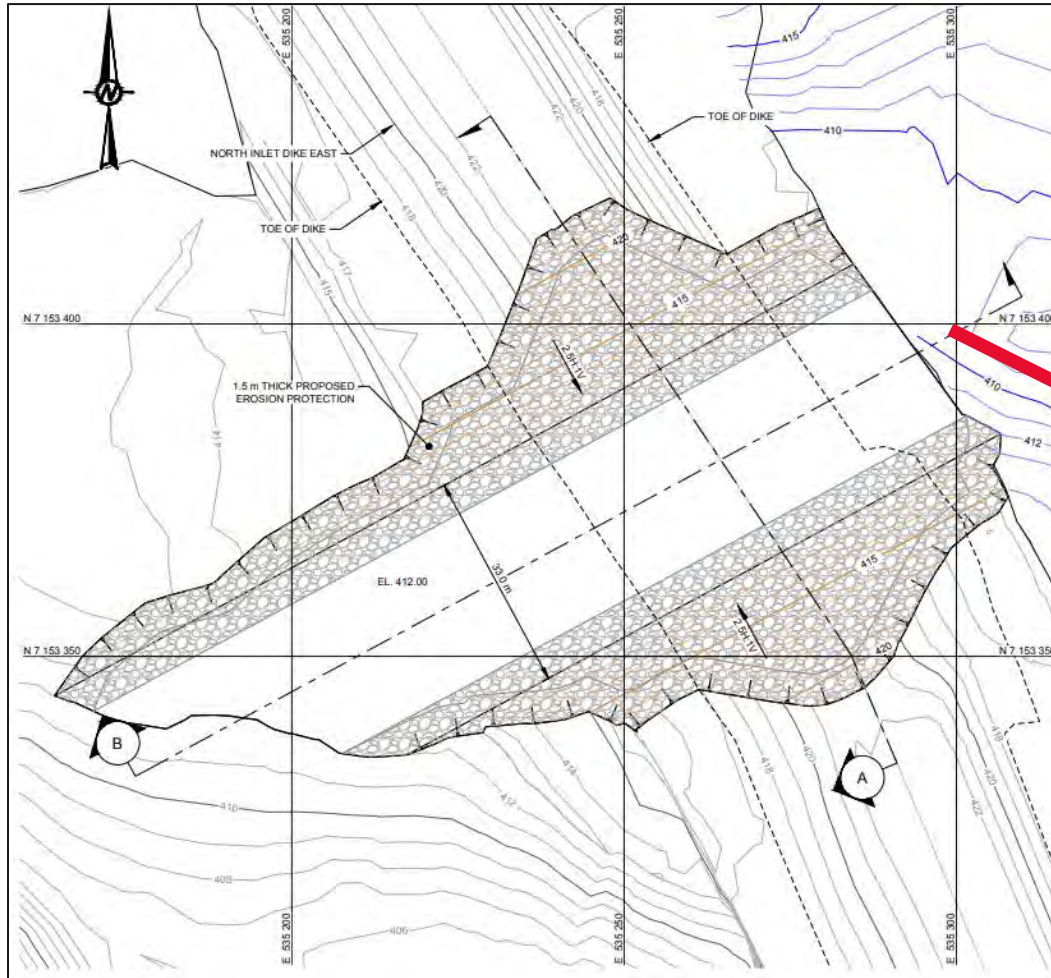
Water in North Inlet will be treated and discharged into LDG (as it is now) to allow time for bioremediation.

Once water treatment on site is no longer needed, and sediment in the North Inlet meets closure criteria, the East Dam will be decommissioned and a breach established that will allow passage of water, fish, and boats.

The contingency plan will be to install a rocky structure where water can flow through, but fish cannot.



North Inlet Reconnection with LDG



North Inlet: TK Panel Engagement and Recommendations

Scope	Date	Summary Recommendations
TKP#7: Focus on Re-vegetation (rec 7.14)	14-18 Aug 2014	- further discussion required for revegetation of North inlet
TKP#8: Focus on Reefs & Water Monitoring (rec 8.14)	2-4 Dec 2015	- regularly stock on-island ponds with bugs to improve water quality
TKP#9: Focus on Caribou & NCRP Closure Plan (rec 9.24)	13-16 May 2016	- Do not reconnect North inlet, open pits or PKC area with the lake/land unless water is proven clean and the same as Lac de Gras
TKP#13: Focus on North Inlet Closure Plan	TBD	[cancelled in 2020 due to COVID-19 pandemic]

North Inlet Questions

What are your thoughts about the proposed closure plan?

What questions do you have?

What would you like to see that would let you recommend reconnecting the North Inlet to Lac de Gras?

What could you see that would cause you not to recommend reconnection?



Part 4: TK Monitoring Approach

Diavik Closure Traditional Knowledge Monitoring Approach

Context:

Diavik is committed to including a Traditional Knowledge-based monitoring approach for post-closure.

DDMI is working with representatives of the Tłı̨chǫ Government to learn from their experiences with the many years of implementing the Ekwò Nàxoèhdee K'è Program.



Diavik Closure TK Monitoring Approach

Planned as a complementary “way of knowing” to understand/measure how closure activities are achieving closure

Intended to be in addition to science-based monitoring but also integrated together

Will also allow for “verification” science monitoring within the TK Monitoring Approach to assist in developing confidence in both programs

Monitoring is to focus on caribou and water and related aspects of these ecosystems

Do as Hunters Do
We Watch Everything

Diavik Closure TK Monitoring Approach

focus on caribou herd health and habitat

also monitor “impacts of industrial development on ekwò habitat”

applied to direct assessments of the reclaimed closure landscape

include cultural water quality criteria to be considered for areas of Lac de Gras (Ek'atì) around the closed Diavik mine site

walk the closure landscape and surrounding area and boat the shorelines of the East Island and surrounding area, documenting and linking all observations to time and location – “Do as Hunters Do” and “We Watch Everything”

collect water samples for scientific chemical analysis; simultaneous “verification” program

run for 7-10 days every 2-3 years; 10-15 TK monitors

Closure Objectives

SW1.	Surface runoff and seepage water quality that is safe for humans and wildlife.
SW2.	Surface runoff and seepage water quality that will not cause adverse effects on aquatic life or water uses in Lac de Gras or the Coppermine River.
SW3.	Dust levels safe for people, vegetation, aquatic life and wildlife.
SW4.	Dust levels do not affect palatability of vegetation to wildlife.
SW5.	Re-vegetation targeted to priority areas.
SW6.	Ground surface designed to drain naturally follow pre-development drainage patterns.
SW7.	Areas in and around the site that are undisturbed during operation of the mine should remain undisturbed during and after closure.
SW8.	Predation of caribou is not associated with residual features of the site.
SW9.	Landscape features (topography and vegetation) that match aesthetics and natural conditions of the surrounding natural area.
SW10.	Safe passage and use for caribou and other wildlife.
SW11.	Mine areas are physically stable and safe for use by people and wildlife.
Open-Pit, Underground and Dike Area Closure Objectives	
M1.	Water quality in the flooded pit and dike area that is similar to Lac de Gras or, at a minimum, protective of aquatic life.
M2.	Pit and dike closure that do not have adverse effects on water uses in Lac de Gras or the Coppermine River or on groundwater use.
M4.	Safe small craft navigation through dike and pit area.
M5.	Physically stable pit walls and shorelines to limit risk of a failure impacting people, aquatic life or wildlife.
M6.	Pit fill rate that will not cause adverse effects on water levels in Lac de Gras and Coppermine River.
M7.	Pit fill rate that will not cause adverse effects on fish or fish habitat in Lac de Gras and Coppermine River.
M8.	Wildlife safe during filling of pits.
Waste Rock Storage Area Closure Objectives	
W1.	Physically stable slopes to limit risk of failure that would impact the safety of people or wildlife.
W2.	Rock and till pile features (shape and appearance) that match aesthetics of the surrounding natural area.
W3.	Contaminated soils and waste disposal areas that cannot contaminate land and water.
Processed Kimberlite Containment Facility Closure Objectives	
P1.	No adverse effects on people, wildlife or vegetation.
P2.	Physically stable processed kimberlite containment facility to limit risk of failure that would affect safety of people or wildlife.
P3.	Prevent processed kimberlite from entering the surrounding terrestrial and aquatic environments.

North Inlet Area Closure Objectives

NI2.	Water quality and sediment quality in the North Inlet that is safe for aquatic life, wildlife and people.
NI3.	Suitable fish habitat in the North Inlet.
NI4.	Water quality in the North Inlet that is as similar to Lac de Gras as possible.
NI5.	Water and sediment quality in the North Inlet that will not cause adverse effects on aquatic life or water uses in Lac de Gras or the Coppermine River.
NI6.	Physically stable banks of the North Inlet to limit risk of failure that would impact the safety of people or wildlife.

Mine Infrastructure Closure Objectives

I1.	Opportunities for communities to reuse infrastructure, where allowable under regulation and where liability is not a significant concern.
I2.	On-site disposal areas that are safe for people, wildlife and vegetation.
I3.	Prevent remaining infrastructure from contaminating land or water.

Diavik Proposed Cultural Water Quality Criteria

Submission to the Wek'èezhìi Land and Water Board of proposed water quality criteria that are culturally relevant, based on engagements with potentially affected Indigenous groups of the Processed Kimberlite to Mine Workings Project (EA1819-01 and W2015L2-0001)

PROPOSED CRITERIA		COMMENT
looks clear		water / ice should be free of foam, grease, soap, sediment, dust, dirt, materials
feels cool or cold		temperature is affected by location, depth, climate change, industrial development
smells clean and healthy		smell is affected by fish, wildlife, plants, rocks, temperature, location, saltiness, materials, sediments, industrial development; can have a fishy smell but not overpowering
tastes fresh		taste is affected by fish, wildlife, plants, rocks, temperature, location, saltiness, sediments, industrial development
sounds alive		water sounds are affected by movement as well as activity by people, fish, wildlife, birds, etc.)

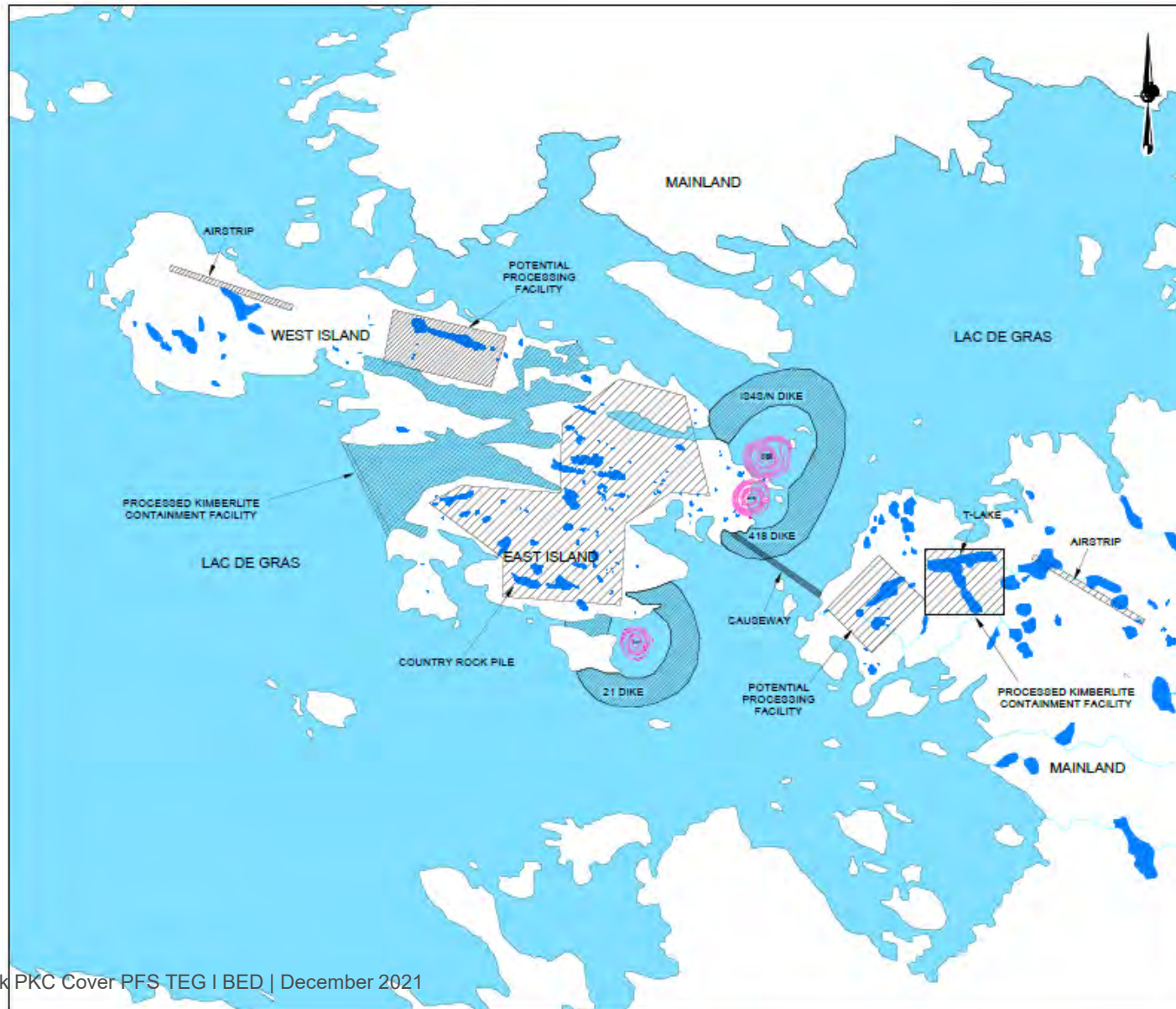
The criteria will be monitored:

1. prior to flooding of the pit(s)
2. prior to breaching the dam and reconnection of the pit lake with Lac de Gras
3. after reconnection with Lac de Gras

TK Monitoring Approach Question

Is this a foundation that you think we can build on to develop the program?

Closure Planning - Options Analysis 1996



Most impactful closure decisions were made during mine design. Facilities locations decisions influenced by regulators and communities. Subaqueous disposal of waste rock and PK not supported. Resulting on-land facilities now greatest closure challenge.

PKC Closure Design Evolution

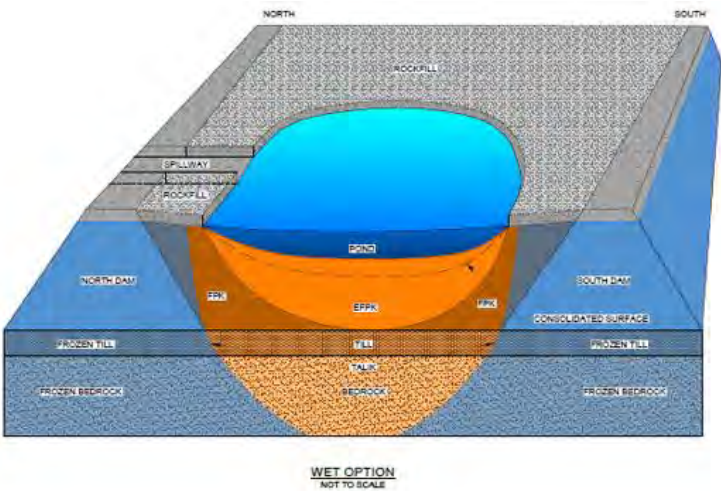
1999 - Dome



geochemical emphasis



2013 - Wet



identified constraints of PK
physical properties – less
geochem
lower cost/schedule OoM option
regulatory/community approval



2021 - Freeze



identified technical/cost concerns
with wet option
alternative advanced

Community Feedback on PKC Cover Design

Community Group	Summary of comments re PKC Closure	Source	Notes
TK Panel	<p>Preference to move FPKC and EFPKC off site/out of the PKC facility. Recommended slimes only be left on site if there would be no harm to environment as a result of the slimes</p> <p>Cover PKC area with a combination of natural sand and soil to ensure that the PKC is not over-heating the area (and melting permafrost) and to support natural re-vegetation.</p> <p>Recommend returning lake and shoreline to natural state (ie: gradual slope), ensure shoreline stability</p>	TK Panel Session 6 (2013)	Removal of PKC later deemed unviable by DDMI for both geotechnical, economic, environmental reasons. Could not maintain gradual slope, natural lake bed.
TK Panel	<p>Climate change impacts must be considered for PKC options</p> <p>If PK goes into mine workings, recommend all PKC be put back into the pits</p> <p>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.</p> <p>Beach materials/rough kimberlite should stay in PKC to support rock cover</p>	TK Panel Session 11 (2018)	
EMAB	<p>PKC should be deposited into mine workings if it allows for the PKC Facility dry (freeze) cover field options and cover design analysis to occur prior to 2025</p> <p>Seepage rates should be calculated for dry (freeze) option as with wet option</p>	ORS Comments - CRP Version 4.1	Tlicho had no comments specific to PKC closure. NSMA and YKDFN deferred to EMAB comments. EMAB's comments didn't indicate preference for one design or another.

Processed Kimberlite Whole Rock Geochemistry

Table 3 – Whole rock chemical analyses (wt%) of samples from PKC1

depth(m)	0	0.2	0.5	0.75	1	1.5	2	3
SiO ₂	39.7	40	42	39.7	41.7	40.3	40.2	42.2
Al ₂ O ₃	3.82	2.81	3.17	2.98	3.95	3.5	3.46	3.95
Fe ₂ O ₃ (t)	7.3	7.94	8.22	7.75	7.35	7.4	7.32	7.25
MgO	31.3	36.7	37.7	35.1	31.5	33.2	33.3	31.8
CaO	4.3	3.32	2.57	3.61	3.48	3.42	3.25	3.27
Na ₂ O	0.12	0.12	0.18	0.2	0.19	0.23	0.24	0.37
K ₂ O	0.67	0.41	0.46	1.1	0.91	1.14	1.25	1.15
TiO ₂	0.47	0.42	0.52	0.49	0.4	0.38	0.37	0.38
P ₂ O ₅	0.27	0.2	0.12	0.18	0.21	0.19	0.18	0.19
MnO	0.14	0.12	0.13	0.13	0.12	0.12	0.12	0.12
Cr ₂ O ₃	0.18	0.21	0.39	0.26	0.19	0.21	0.19	0.18
V ₂ O ₅	0.02	0.02	0.01	0.01	0.02	0.01	0.01	nd
LOI	11.2	7.83	4.71	8.08	9.05	9.08	9.47	8.37
Sum	99.4	100	100	99.6	99.1	99.2	99.3	99.2
CO ₂	3.37	2.3	1.66	3.18	2.39	2.97	3.02	2.85
S	0.32	0.21	0.24	0.19	0.37	0.35	0.31	0.27
SO ₄	0.2	0.2	0.2	0.1	0.2	0.2	0.1	0.2

(t): total; LOI: Loss-on-ignition; nd: not detected; sample labels refer to depths in meter

Processed Kimberlite Whole Rock Geochemistry

Table 4 – Whole rock chemical analyses (wt%) of samples from PKC3 and PKCSW

	PKC3								PKCSW				
depth(m)	0	0.2	0.5	0.75	1	2	2.5	3	0	0.2	0.5	1	1d
SiO ₂	39.9	40.9	41.1	41.1	41.1	40.7	41.7	40.4	40.7	40.7	42.0	40.6	40.4
Al ₂ O ₃	2.59	3.94	3.00	4.40	4.00	4.15	3.70	3.44	2.41	3.77	3.99	3.05	3.06
Fe ₂ O ₃ (t)	8.06	7.11	7.85	6.93	7.16	7.05	7.42	7.44	7.88	7.02	7.13	7.63	7.64
MgO	38.0	31.2	36.7	28.3	30.9	29.9	34.0	33.9	37.3	29.7	30.8	34.8	34.8
CaO	2.99	3.79	2.64	4.13	3.34	3.51	2.87	2.92	2.87	4.10	3.53	3.36	3.31
Na ₂ O	0.1	0.17	0.15	0.25	0.22	0.2	0.28	0.16	0.11	0.22	0.36	0.21	0.21
K ₂ O	0.4	0.72	0.54	1.32	0.85	0.78	0.81	0.66	0.39	0.79	0.81	0.83	0.83
TiO ₂	0.4	0.46	0.34	0.47	0.43	0.43	0.4	0.38	0.35	0.46	0.43	0.38	0.37
P ₂ O ₅	0.17	0.26	0.15	0.26	0.22	0.24	0.18	0.2	0.14	0.22	0.21	0.19	0.17
MnO	0.13	0.13	0.12	0.11	0.10	0.11	0.13	0.11	0.13	0.12	0.13	0.12	0.12
Cr ₂ O ₃	0.23	0.20	0.23	0.17	0.19	0.17	0.24	0.20	0.22	0.17	0.20	0.21	0.2
V ₂ O ₅	nd	0.02	0.02	0.01	0.02	0.01	0.01	0.01	nd	0.01	nd	0.01	0.02
LOI	6.71	9.62	6.94	11.9	11.1	11.8	7.62	9.53	7.04	11.8	9.29	7.91	7.91
Sum	99.7	98.6	99.8	99.3	99.6	99.1	99.3	99.4	99.6	99.1	98.9	99.2	99.1
CO ₂	1.95	2.66	1.57	3.06	2.25	2.51	1.99	2.01	2.67	3.84	2.89	2.83	2.72
S	0.23	0.32	0.2	0.34	0.32	0.33	0.28	0.25	0.17	0.33	0.27	0.24	0.25
SO ₄	0.3	0.2	0.1	0.2	0.3	0.2	0.2	0.2	nd	0.2	0.2	0.2	0.2

(t): total; LOI: Loss-on-ignition; nd: not detected; sample labels refer to depths in meter;

1d: duplicate analyses of 1

Processed Kimberlite Neutralization

Table 12 – Neutralization and acid-generating potentials based on quantitative mineralogy of samples from PKC1

<i>depth(m)</i>	0	0.2	0.5	0.75	1	1.5	2	3	avg	stdev	min	max
olivine (wt%)	48.3	56.0	56.3	43.9	39.9	38.1	36.5	40.2	44.9	7.8	36.5	56.3
calcite (wt%)	8.5	5.6	3.9	7.4	6.0	6.9	6.9	6.4	6.5	1.4	3.9	8.5
pyrite (wt%)	0.6	0.4	0.4	0.4	0.7	0.6	0.6	0.5	0.5	0.1	0.4	0.7
NP ol1	586	679	683	533	484	462	443	488	545	95	443	683
NP ol2	165	191	192	150	136	130	125	137	153	27	125	192
NP calcite	85	56	39	74	60	69	69	64	65	14	39	85
AP pyrite	10	7	7	7	12	10	10	8	9	2	7	12
NNP	172	196	193	158	137	134	128	142	157	27	128	196
NPR	18	30	30	25	13	14	14	18	20	7	13	30

NP ol1: congruent dissolution of olivine; NP ol2: incongruent dissolution case; NP and AP values in kg CaCO₃ eq/t; Refer to the text for the calculations of NNP and NPR.

Table 13 – Neutralization and acid-generating potentials based on quantitative mineralogy of samples from PKC3

<i>depth (m)</i>	0	0.2	0.5	0.75	1	2	2.5	3	avg	stdev	min	max
olivine (wt%)	56.4	41.6	54	30.5	41.1	43.8	48.1	48.9	45.6	8.2	30.5	56.4
calcite (wt%)	4.8	6.7	4	7.8	5.7	6.4	4.9	5.0	5.7	1.2	4.0	7.8
pyrite (wt%)	0.4	0.6	0.4	0.6	0.6	0.6	0.5	0.5	0.5	0.1	0.4	0.6
NP ol1	684	505	655	370	499	531	584	593	553	100	370	684
NP ol2	193	142	184	104	140	150	164	167	156	28	104	193
NP calcite	48	67	40	78	57	64	49	50	57	12	40	78
AP pyrite	7	10	7	10	10	10	8	8	9	1	7	10
NNP	196	145	186	110	142	152	166	169	158	27	110	196
NPR	30	16	29	12	15	16	21	21	20	7	12	30

NP ol1: congruent dissolution of olivine; NP ol2: incongruent dissolution case; NP and AP values in kg CaCO₃ eq/t. Refer to the text for the calculations of NNP and NPR.

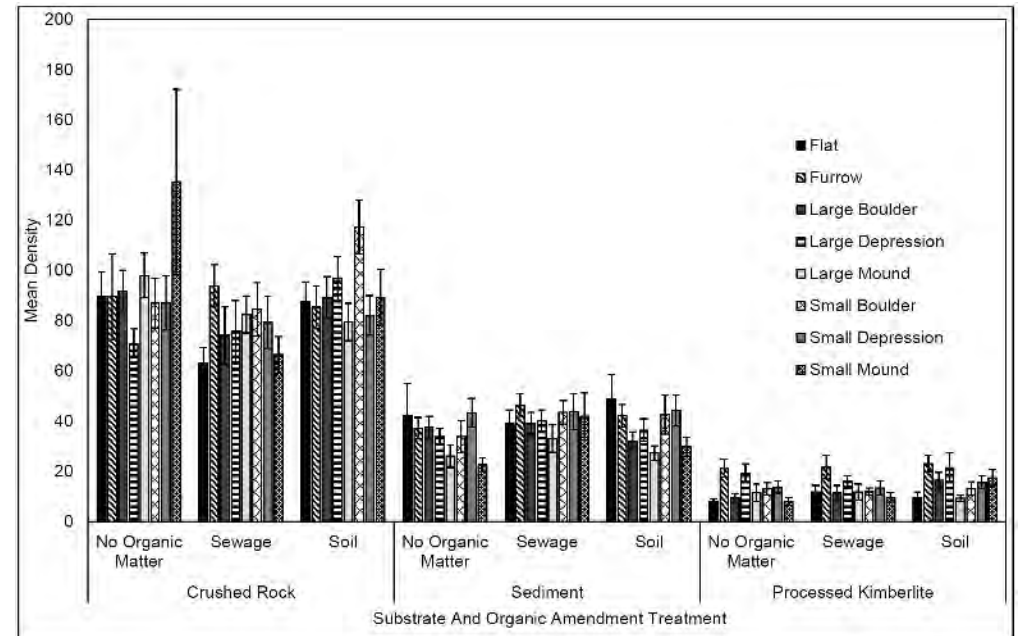
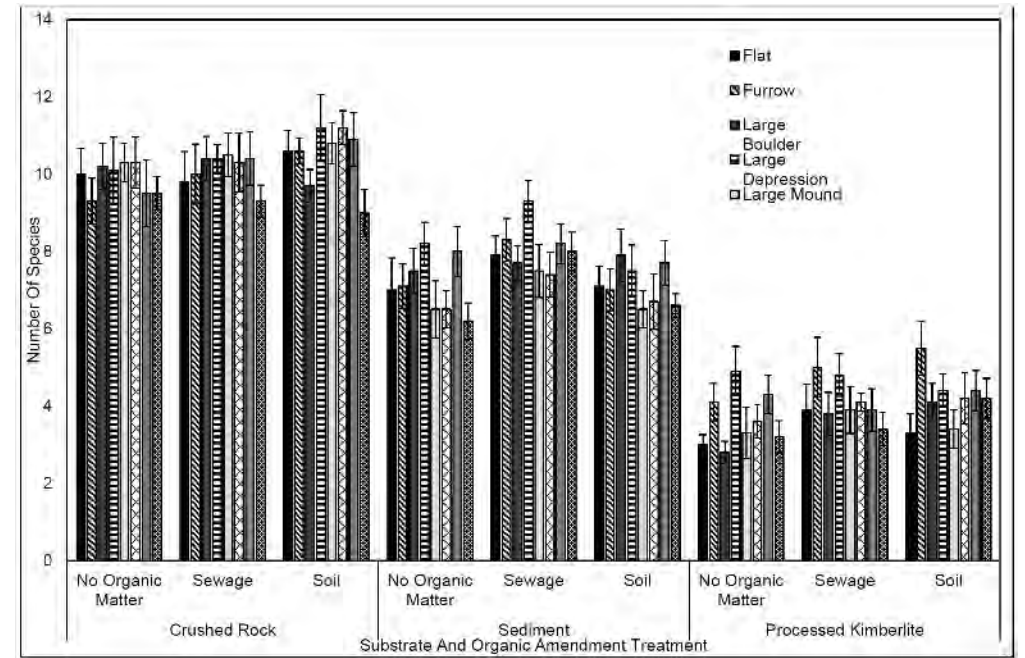
Processed Kimberlite Minerals

Table 6: Results of quantitative mineralogy by XRD with Rietveld refinement

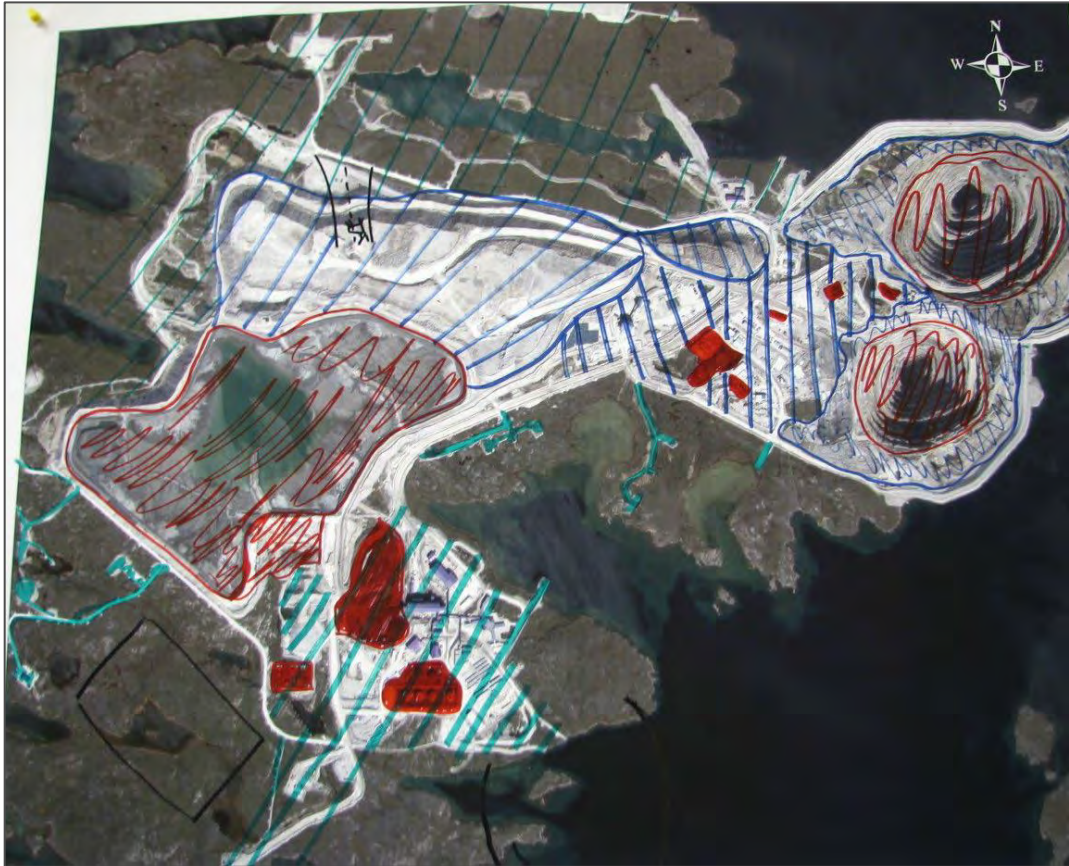
Mineral	Ideal formula	% CT	% FT	% MT
Almandine	$\text{Fe}_3^{2+}\text{Al}_2(\text{SiO}_4)_3$	6.3	1.1	1.7
Biotite	$\text{K}(\text{Mg},\text{Fe})_3(\text{AlSi}_3\text{O}_{10})\text{OH}_2$	3.4	3.4	2.9
Calcite	CaCO_3	3.6	4.1	4.9
Clinochlore	$(\text{Mg},\text{Fe}^{2+})_5\text{Al}(\text{Si}_3\text{Al})\text{O}_{10}(\text{OH})_8$	2.6	7.0	3.7
Diopside	$\text{CaMgSi}_2\text{O}_6$	2.1	2.0	1.2
Forsterite	Mg_2SiO_4	46.0	32.0	38.3
Hematite	$\alpha\text{-Fe}_2\text{O}_3$	-	0.3	-
Lizardite	$\text{Mg}_3\text{Si}_2\text{O}_5(\text{OH})_4$	4.6	9.9	3.8
Montmorillonite model	$(\text{Na},\text{Ca})_{0.3}(\text{Al},\text{Mg})_2\text{Si}_4\text{O}_{10}(\text{OH})_2 \cdot n\text{H}_2\text{O}$	27.0	32.2	40.1
Plagioclase	$\text{NaAlSi}_3\text{O}_8 - \text{CaAl}_2\text{Si}_2\text{O}_8$	1.3	2.5	1.3
Pyrite	FeS_2	0.5	-	0.4
Quartz	SiO_2	1.6	3.9	1.7
Titanite	CaTiSiO_5	1.0	1.6	-
Total		100.0	100.0	100.0

Revegetation Research

- Research conducted with University partner 2004 to 2017
- Crushed rock with organic amendments consistently resulted in high seedling emergence and growth
- However, plant performance was similar on unamended crushed rock after ten years
- Micro topography does affect where seedlings emerge, their survival and growth
- Grasses will facilitate soil development over time through addition of organic matter and nutrients from litter production and decomposition
- Considerable growth between years 5-10
- Without seeding, regeneration would be on the order of decades



Traditional Knowledge In-Design



Red – areas where you do not want wildlife to go;
Green – areas where you want to encourage re-vegetation or regrowth;
Blue – areas to encourage wildlife passage through modifications (e.g., landscape)

Targeted revegetation design (hashed areas) based on recommendations from TK Panel with a clear balance to not make the island an attractant for wildlife and in particular not attract wildlife to use the waste rock piles, processed kimberlite facility, and areas of previous hazardous waste storage. Allow these areas longer to 'heal' before wildlife are encouraged back.

Rehabilitation Methods

- Revegetation is not required for erosion control – purely aesthetic
- Scarification and deep ripping of ground using dozers
- Broadcast seeding with density of 25 kg/ha using ATVs
- Deposit seeds immediately before snowfall or after freshet melt
- 90% grasses, 10% forbs (native species)
- Regulatory success metrics still undefined – level of effort vs. plant density
- Revegetation remains a topic of interest with communities with a wide range of opinions between “*letting Mother Nature take its course and heal the area over time*” to active revegetation of all areas. Recommendations vary over time and by community
- Review of Final Closure and Reclamation Plan (late 2022 submission) will confirm requirements

Vegetation Cycle

Natural Tundra



Waste Rock Infrastructure



Seeding 1 year



Decades?



Seeding 10-15 years



Seeding 5-10 years



Site Aerials



Natural Tundra



Seeding 8yr



Natural lakebed growth 20 yr

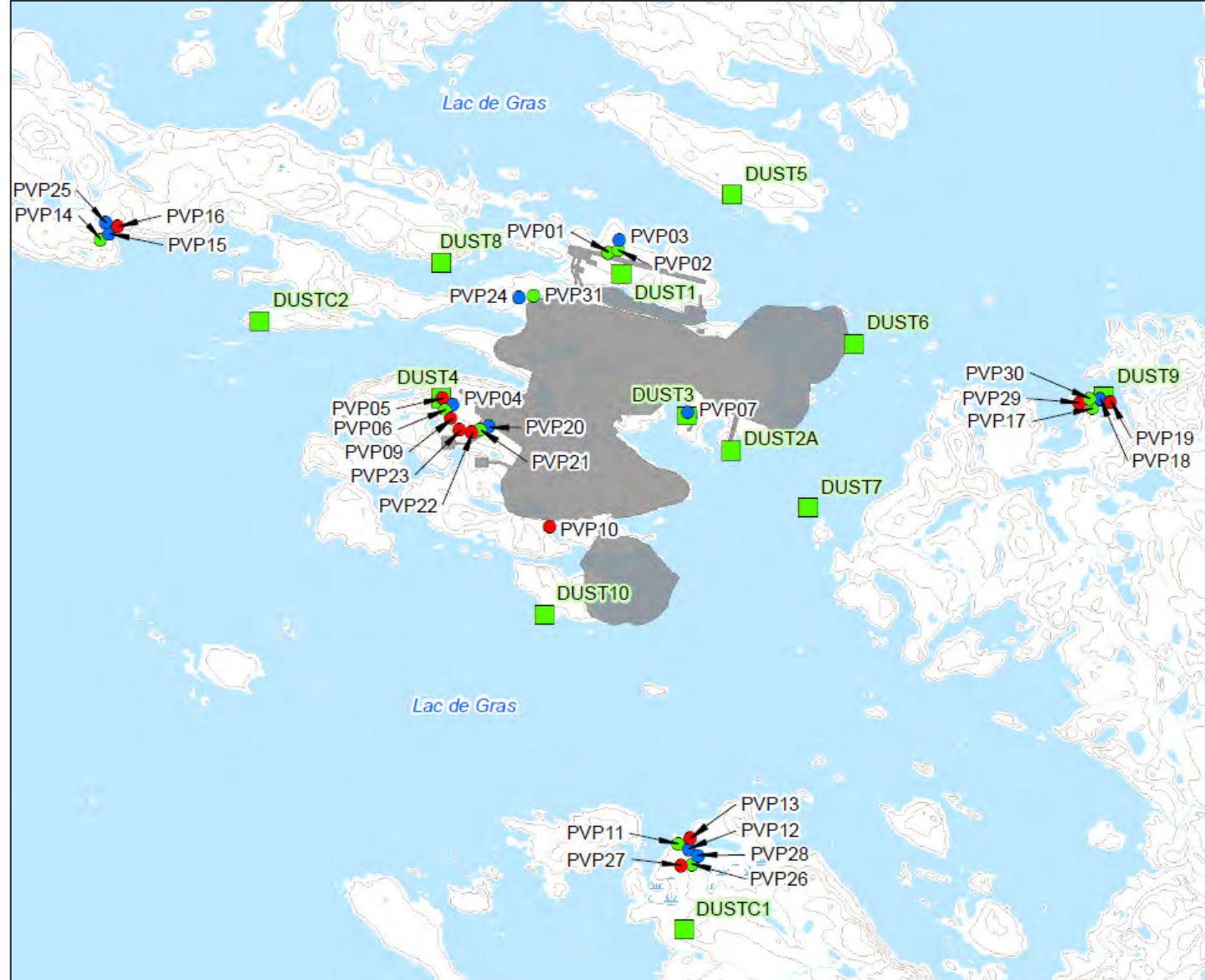


Seeding 18yr

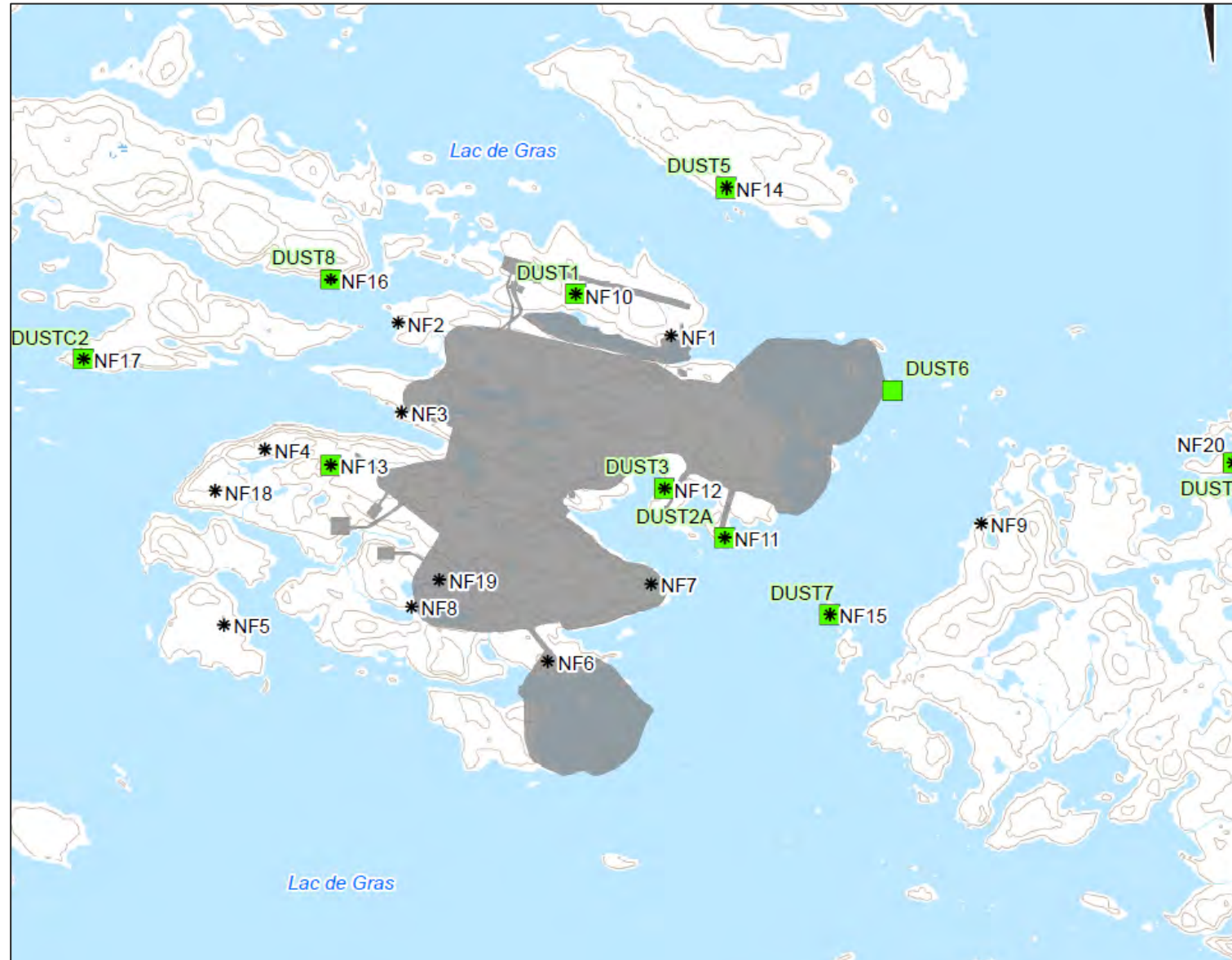


Natural laydown growth 20 yr

Scientific Monitoring - Vegetation



Scientific Monitoring - Lichen



Scientific Monitoring - Lichen



APPENDIX D

Session Transcription Notes

1 TK Panel Session #14: Day One Transcription

2
3 **Peter:** Good morning, everyone. we are going to go ahead and begin. There are two other
4 people who will be coming. They are having a bit of vehicle issues so they might be another 10
5 to 15 minutes or so. We will start and when they arrive; we will let them introduce themselves to
6 the group. To begin, today we are going to ask Elder Sangris to say an opening prayer and then
7 we will begin with the rest of the agenda. So Elder Sangris if you can say the opening prayer.
8

9 **Peter Sangris:** I was asked to do the opening prayer this morning. We are talking about
10 something very important, so we are going to be discussing that for the next few days. We are
11 talking about things that are on the land, like fish, the water. And we are going to be listening to
12 each other. I think that there are topics that we should discuss. One of them is fish, which we
13 had seen last summer. Last summer, we were there at the camp and what we saw we did not
14 like. So, what we should do today is really emphasize on that. The land has been there for us
15 for a long time, and we survive from all the things on the land, we hope that it will be the same in
16 the future for all the kids. We should say the prayer now.
17

18 OPENING PRAYER

19
20 **Peter:** Mahsi, Elder Sangris. Just a couple of housekeeping items before we get into the full
21 agenda. Everyone should have an interpretive machine. Number 1 is English. Number 2 is
22 Yellowknives Dene, and then Number 3 will be Lutselk'e. Those will be the 2 interpreters so if
23 you hear the Elders speaking then you will need this for interpretation. As we are emerging from
24 the COVID-19 pandemic, we will try to keep social distanced and if you are speaking, sitting,
25 drinking, or eating it is your choice on the masks but we have hand sanitizer as well as
26 everything you would need. The washrooms here are at the back, and there is a men's and
27 women's washroom right through that door. There is an exit where you came in and another
28 going past the washrooms.
29

30 Okay, so we are going to certainly welcome the TK Panel to the session today, and I have told
31 the interpreters if anyone is talking too fast just to let us know. But what we are going to begin
32 with is a roundtable introduction because there are some new panel members in the room, and
33 some new staff in the room, and just so everybody will have a chance to hear who is in the room
34 and learn a bit about them. So, what we are going to do for the introduction is to give your
35 name, the community you are from, your experience with the TK Panel, something about
36 yourself that will let everyone know a little bit about you as a TK member, and last of all, if you
37 could say what success means, we are going to be here three days, so what would success
38 mean to you after being here three days, providing your input, providing your opinion, and giving
39 Diavik some guidance on their closure of Diavik. So those 5 things.
40

41 I'll start just so you have an idea of the introduction and that will help all of us know each other a
42 little better as we are spending the next three days together.
43

44 My name is Peter Clarkson I live up in Inuvik and I have been there for 35 years. I lived in
45 Yellowknife before then but it was too big, so I had to move north where it was smaller.
46 Originally a biologist but since then have done a number of things in the community. This is my
47 first TK panel that I have attended. Something about me, I enjoy spending time on the land, and
48 I was telling Ms. Adjun that in 2012 I flew into Kugluktuk with a friend, and we hiked from
49 Kugluktuk to Paulatuk for three weeks, 500 km. We didn't see anybody in three weeks. We saw
50 caribou, wolves, foxes, and geese. But we didn't see another person until we got closer
51 to Paulatuk where there were camps. So that is something I like to do, spend time on the land.

Success for me, by Friday afternoon, would be that all of you have had a chance to give your opinion, to express your thoughts, your concerns to ask your questions on the presentations on the mine closure that you feel you have had good input, and that it has been worthwhile for you. That would be a success for me.

We will start over here because you are supposed to start where the sun rises and then you move to where the sunsets. So, we are going to start here, so if you can - name community, TK panel experience, something about you, and success. All the microphones should work so that's good.

Lutsel K'e Dene Elder: My name is [redacted], I come from Lutsel K'e Dene First Nation. I think I know my traditional knowledge of where I came from in my community. I had been living off the land with my parents and I still do today. Something about me, for two years, because of COVID, I have been staying home. That is all I need to say, you can't do nothing. The lockdown is hard because of COVID. We all know, we all have to stay safe and watch ourselves because I really need to watch my Elders, because we only have a few in our community. I have my uncle here with me, who I really care about, and some of them at home and my aunties. Success for you, I have been in this TK panel with Diavik for a long time. All my traditional knowledge that I give to them, I hope they work on it really hard before the mine closes. Marsi Cho.

Sierra: My name is Sierra Catholique. I am from Lutsel K'e Dene First Nation this is my first time attending a TK Panel meeting. And something about me, I am graduating this year.

Albert: I am from Lutsel K'e Dene First Nation, my name is Albert Buchais. I am an Elder from Lutsel K'e Dene First Nation and now that we are here for the Traditional Knowledge Panel I have been working with, off and on, with the mining and other independent environmental, so when there is a closure, and when we talk about our land, we talk about the life that we live on our land, where we have [Lutsel K'e Elder] here with us, and another youth, so these youth are learning from us. This is good when we bring our youth. I am not going to say too much here but I will listen to you, and I will put in my voice to talk about something towards our land. Thank you very much again for being here.

Vikki: Hi my name is Vikki I am from Kugluktuk. This is the second panel because I got the opportunity to go to the camp at Lac de Gras. Something about me, I am in my fourth year of the teaching program so the experience of being around Elders and hearing stories of the land and gaining knowledge of the land as well, it's really great.

Kelsey: Hi my name is Kelsey Martin, I come from the community of Ndilo I am a YKDFN band member. This is my second TK panel; I was at Lac de Gras. And something about me is I like being on the land. Any opportunity or chance I get. Either fishing, setting nets, getting wood, or hunting any opportunity I get I go. And that's about it.

Barbara: Hi my name is Barbara Adjun I am from Kugluktuk, Nunavut. I don't have experience with this panel, but it is really nice to hear stories of the traditional knowledge that everyone has. Yesterday, I listened to an Elder and just the start of it was so interesting so I hope I can learn something from it. I'm 60 now so I'm an Elder I guess (laughs). I am a replacement for Nancy. She went to this before. She has been to the camp, the fish camp, at Diavik, and I just hope to learn something from everyone here and I hope I can bring something. I have a lot of questions about our fish; I hope that I can bring something to the table about traditional knowledge about fish. Thank you.

Peter: It was Barbara's dad who gave us a boat ride across the Rae and Richardson then dropped me and Carston off, then we were off for three weeks. So, I knew Carl from the wildlife days when he was the old wildlife officer. Elder Sangris?

Peter Sangris: I am Peter Sangris from Dettah First Nation. Mahsi Cho.

Mary Jane: I live in Ndilo, my name is Mary Jane Francis. I grew up on the land ever since I was very young. I used to be on the land a lot with my family. I have been attending meetings but not very often because I don't really know how the meetings operate but I am here to learn too. Thank you.

Joe: My name is Joe Rabusca, I have been going to a lot of meetings ever since I was young. It is good to see my friend over there who I had a lot of meetings with. I used to be the Grand Chief in Rae for many, many years; I am still involved today. I am the assistant to the Grand Chief right now and the special advisor to Jackson Lafferty who is the Grand Chief now. I work with him. I am happy to see the young people today because we as Tłıchǫ Government people have to bring our young people to every meeting, some are supposed to be here today, but they aren't here. The reason is that one day it will be you sitting between three of us here as an Elder. Look what happened to our leaders, of our Elders in the past, they are no longer here with us. One day that's what is going to happen. So, what we like to do is pass on our knowledge, work with young people. That's what I keep saying to Tłıchǫ young people. One day they are going to be here at the table, and we won't be around. So, we have to learn from our Elders when they are young. That's what I did, I got involved when I was very young. When I was 20 some years old, I got involved with politics. I talk so much at meetings because I do care about what we are going to talk about – our land, our water, and our wildlife. That's what the Elders always keep telling us because that is what we live on. We live on the wildlife that is out there on the land, we use the water, we use the land, the land feeds us, that's what the Elders always say. If we are involved with properties like we are talking about today, I was there when this started. I got involved. All the hearing that you can talk about Diavik and all the other mines that are out there now, I was involved right from the start, until they started and I'm still here, and now we are at a part where closure plans are going to commence. If you look at Ray Rock, we are kind of going backward. Ray Rock was there when I was young, but they made an awful mess leaving all that garbage out there and that's not the only one. So, we learn from what has happened at that mine and we work with the government to clean that up. Now that's not the only one, there are others. I live in Rae Behchokǫ across straight to Great Bear Lake there are so many abandoned mines. Kind of getting away from what we are supposed to talk about, but we are in the same boat, and we don't want to see that because one day you are going to have to look after the land. There are going to be future mines. As we speak right now, they are finding a lot of gold close to Rae, about 18 to 20 miles from Rae. And the water goes through there and it is going to go to Rae. They are doing the same thing. Close to Snare Lake, just on that side of Snare Lake, could be about 30 miles. They've got a big property, that we allow them to do, but if they find anything what is going to happen? It is important that we come to a meeting, especially if we are young, because after we are gone it will be you coming to the meetings, meetings like this. That's why it is really important that we come to a meeting and listen carefully. When you are young and go to a meeting, next time they ask you to go you might not want to, but don't be like that. Who is going to look after the land that we are living on? You, you have to look after it and the wildlife that's on it, that is why I am here. That's why I do care what happens out on the land, because no one is going to do it for us. No one. So, when we speak, we speak because we do care about the land, what's out there, and what they do on it. We have to be partners with them. We have to work with the companies out there. We have

to help them so that we make the right decision so that our land is protected, our wildlife is protected. When I meet with mining companies, they are saying that there is less caribou, well it wasn't me that created caribou. God created the animal, God created the wildlife that is out there and our Tłıchq Elders, I bet you we heard the same thing here, that wildlife will never go down. One day, God will put more on there, that's the story I hear all the time. One day there is no rabbits, but in a couple months there are thousands. It is a God given thing. No human being made rabbits, we don't raise them, we don't grow them. God provided them. It has always been there; it is always going to be the same. We have to look after it, by looking after the wildlife we have to look after the land. I don't want to take over the meeting sir, but I just wanted to say that I have been involved right from the start, I'm still here, we have to be, there are going to be future mines in our areas, and the water flows down to our neighbours. We know it, so we have to look after our water.

Peter: Thank you Joe, that is some great advice, especially for our youth in the room. Métis Elder?

Métis Elder: [Redacted], North Slave Metis Alliance, first TK Panel I have attended. Something about me, born and raised in Fort Smith.

Claire: Good morning, everybody. My name is Claire Tincombe. I am here as an assistant facilitator, and I am doing the transcription of the session. I work closely with Peter and Brenda at Det'on Cho Environmental and Hemmera, those are the two companies that are here putting on this facilitation workshop. I guess, a fun fact about me is that I coach gymnastics here at the gymnastics club in Yellowknife and I find it to be very fun. My experience with the TK Panel, this is my first time here and I am really looking forward to hearing everyone's input and I am happy to be here. Thank you, mahsi.

Peter: Everyone is going to become very familiar with Ryan, Ryan works with Pido. He is the man who makes all this technology work, so thanks Ryan.

Lena: My name is Lena Drygeese, I live in Dettah, I am a Yellowknives Dene First Nation. I don't really go on the TK Panel board, but I have been interpreting for my Elders since the early 90s. I am a self-taught language survivor because I went to residential school, but I had to learn my language again so today, I am interpreting for my Elders and I feel so good about that. I am happy to be here. Mahsi.

Sarah: Good morning I am from Łutsel K'e Dene. I started interpreting when I was young in the 1970s and am still working as an interpreter. I have been to a lot of meetings and when you are trained, you are trained not to think about it just go word to word. I have a lot of experience and I am glad to be here. I have met most of the Elders from Tłıchq and Great Bear, around that area and I know a lot of people and on top of that I will be 80 years old in 2022. Marsi Cho I am glad to be here today.

Brenda: Hi my name is Brenda Michel, I am originally from Łutsel K'e. This is my first meeting here. Something about me. I used to be a student and I worked at all the mines Diavik, Gahcho Kué, Ekati, Snap Lake. I was the environmental monitoring person. And I learned lots working with air quality, water quality, and fish quality. I understand what this meeting is about and my Traditional Knowledge, I really believe in it. I like to take care of the water, and the fish, and the caribou. That was my goal when I was working up at the mines, so I think I am in the right place. My success is that I am going to try to work hard for you guys. And mahsi cho.

Laura Jane: Hi my name is Laura Jane Michel I am from the Łutsel K'e Dene First Nation I am here to observe the meeting, I work with the wildlife and lands as the acting manager. About myself, I like going out on the land, so just listening to the panel and everyone's TK knowledge is something important to me and it is always good to learn from other people's knowledge and what they bring to the table. Marsi cho.

Skye: I am Skye Lacroix I am from Kugluktuk, Nunavut. I work at the Kitikmeot Inuit Association as the land and environment project officer, but I lived here most of my life in Yellowknife. This is my first TK panel, I am just observing as a staff member. Something about me is that I love berry picking. I hope everyone feels heard at this panel.

Myra: Good morning, my name is Myra Berub. I work with Diavik, and I have been working with Diavik for the last 3 years now. I live in Yellowknife but before that I lived in Hay River and have lived in the north for 19 years now. I know I don't look that old, I did come as an adult. This is my 3rd TK panel, we had hoped to have more but of course because of the pandemic we weren't able to meet as much. I have 2 children, Penelope and Sebastian, they are 14 and 12, they were born here, they are growing up here, I am raising them here. So, for me, success is also thinking about our youth, and they love going out on the land going camping, I want to continue to learn indigenous teachings because I live here, and I am raising my family here. So, thank you for being here today and letting me join you in these discussions. Mahsi, marsi, quana.

Gord: My name is Gord McDonald, I am Diavik's Closure Manager. I have been, I think with the exception of a couple of TK Panels, to every TK Panel session but I have missed the fish ones as those are operated by the site team. Something about me, I am actually the longest-serving Diavik employee. I have been with Diavik for almost 25 years now. It started with the original design, permitting and community engagement. Dealt with many of you when you might have been former Grand Chiefs, so I have a lot of history with Diavik. Success to me means answering a lot of your questions. If I don't have a lot of questions from you, I think that means we have not been succeeding. I also look forward to on Friday when I normally get to receive your recommendations on the session. Historically it has been a very engaging time, and it has been youth that presented the recommendations. I look forward to hearing your recommendations, answering your questions, and trying to explain the closure of the Diavik mine to you.

Peter: Thank you, mahsi for those great introductions. We are here for very serious work to provide our recommendations to Diavik. I just want to clarify Myra and Gord are the only 2 Diavik employees. Myself, Claire, and Brenda do not work for Diavik. We actually work for you, to record your recommendations. Although it is serious work, we also want to have some fun since we are here for three days, so what we have set up over here is what we are calling the prize table. There are all sorts of stuff, including some hoodies that Det'on Cho had. I brought some fish sticks from Fort McPherson, some dry fish, Rio Tinto hats, cups as well as some smaller items like Rio Tinto fishhooks.

We are going to, probably three or four times a day, we will draw a name and you can take any of the prizes you want. A couple hours later we will draw another name. Just to make it a little bit fun, and to go home with a few prizes. And when your name is drawn, you can pick anything you want from the table.

Next, we are going to go through the agenda, so everyone has an idea what the plan is. We are going to start, after the break, with a presentation from Diavik. Then we will have a group

discussion and questions. Then we will have a break for lunch. It will be provided here. After lunch there will be another presentation and then getting input from you about the presentation and what your recommendations are. Claire is going to be busy recording everything you say and marking the recommendations. Friday, we will go through the recommendations and make sure that all of those recommendations are recorded accurately. Thursday is very similar, with 2 presentations on Thursday, and then Friday is reviewing the recommendations, presenting the recommendations to Gord and Myra, and wrapping up at the end of the day with a prayer. None of us are used to sitting all day, we will take some breaks and will try to keep the day flowing best we can. Anyone who has a vehicle here, see Myra at the break, because she knows where you can park it, so you don't have to keep feeding the meter.

Any questions about the agenda? If, during the three days, anyone starts to feel a little bit sick, or starts to come down with something, let us know that you will be excusing yourself. We just want to make sure that everyone is comfortable.

Any other questions about the next three days?

The break is scheduled for 10:00 am, what we want to do is have a little bit of a game. That will be the first draw for the prizes, it is called diversity bingo. If you don't have a pen let us know, Claire will hand them out. The idea of the game is to write people's names under the questions and the first person to get all 9 questions with a person's name wins a prize.

They are local community type questions. We are going to do number one today and we will do number two tomorrow. Feel free if you can answer some of those, but you will have to go to other people to answer the other questions.

BREAK

Peter: Myra is going to be showing a video. Then we will have a presentation from Gord or Myra and then we will open it up to the floor for discussion.

VIDEO PRESENTATION

Peter: So that is the overview presentation that gives everyone a good view of Diavik and what you will see in the coming presentations. Gord will be giving the first presentation on the Processed Kimberlite Containment cover. So, Gord, the floor is all yours.

Barbara: When you use acronyms, I don't know what they mean. Can you spell them out? I couldn't understand the acronyms that you used; I am new.

Gord: The interpreter asked me about LDG, means Lac de Gras so that is the lake where Diavik is. The one you'll hear a lot today is PKC, which stands for Processed Kimberlite Containment. Processed Kimberlite is the rock after we have taken the diamonds out and containment is just that it is being put inside a dam.

Barbara: I think we should use the full names of everything.

Gord: I will show you a map in a minute. Just before we start into this, I just wanted to make sure that if any of you have any questions about this change in facilitators. It was a big change of us, Natasha and Joanne had been facilitating this panel for over 10 years, so it was not an

easy change to have made. And I want to make it clear that it had nothing to do with whether they were good at their job, they were excellent. But it was just a change to allow a different approach, and also to bring on a more northern and indigenous partner, which is certainly one of our company objectives.

Lutsel K'e Elder: Since Joanne, Sarah, and Natasha are not here, do you know all my TK, traditional knowledge that I gave to Diavik over all those years that I have been going to the meetings? Hopefully, I do not have to repeat myself. Because it will be the same thing that my Uncle Albert will say. We gave all our knowledge to the mining company on how we want things to be done when the mine closes. So, I don't really want to repeat myself, it is kind of hard when you start all over again. Because we did give our good knowledge of our traditional knowledge to the mining company and when I first walked through the door, I felt different because we don't have the people that we had been going to the meetings with. Hopefully things will change for the better. We also need to learn more about the way the mine will be closed. I hope we have lots of good words for the past three days here, with that I have lots of questions for you, Gord.

Gord: That is a very good point, I don't think you should be thinking that you gave your TK to Natasha, Joanne, and Sarah. They were collecting the information, and writing it down, and putting it in a place in the reports that come with each of the panel sessions, and in the recommendations that really come all the way to Diavik through the facilitators. That is what the facilitators are there for. We do have all that information, you don't need to repeat any of it, it is all in reports that are being put with regulators. You should definitely not feel like you need to repeat yourself. Peter, and the team, have reviewed the past reports so are bringing themselves up to speed, you are still going to have to help them out a bit, there will be a bit of overlap but I don't think there will be a problem.

Lutsel K'e Elder: The other good thing is that I had all their emails, so whenever they wanted to ask me a question, I'd email them back. Which is really good, you know if I miss anything I will read it, and send it back to them. Communication is really good. It will be good with these people that are here. I will give you my email, and if you want it, and need my help I am here for that.

Gord: That is a great offer, we will get that down.

Albert: I just listened to [Lutsel K'e Elder] talking from the long time since the mine started. There were a lot of Elders that put in their TK into the program, and all that they say. When somebody talks, we all have the same culture, so, what our Elders put in place for us. I am here as an Elder and I went to a lot of meetings. So now that we are not going to change our words, or anything, because when there is a reclamation of the mine, we have to help get our land as clean as possible for the animals, and our Elders have told us, and now we are here as Elders, and we are saying the same thing that they said. The mining industry is a big issue for our land, our waters, and our animals. Especially the fish. Everything is not the same, but what we are going to do is to get all the animals, the fish, the water, clean so we are very concerned about the land, and I know the mining industry is interested in all the diamonds that are in the land. So as a TK panel, here we want the industry to work really good with us, so that when the mining is closed, our land will be sustainable for all our animals and well-being of all our people. Even the fish tasting was an issue, and the water, too, especially. Everything was good at the beginning, but now everything is not good, even the water, and the fish, it is not edible. The fish are really poor, skinny, dark colour, and all the sediment that goes in the water and it settles at the bottle, and the fish eat it. When there is wind the water moves around and this is the way the water moves around, and this is the way it spreads out on the lake. We don't have big books that tell

us where we come from, but we know what we are talking about because we live by the law of the Dene people. So now we are here again, there are a lot of people that are at home, and we are putting our thoughts and recommendations to the mine. And now there is the land where the mine is, there is caribou land in the old days, and the caribou held onto the land after the mining started, now I don't think they go there anymore. And there is lots of overflow in springtime from the snow that goes in the water. And if the land is contaminated, you can't control the overflow that goes in the water. It is kind of very hard when you think of things, and all these things started on account of the mine. And when it is our turn to go hunting on the land, we see a lot of different stuff that is not good for the land. Even set nets in the water and if the fish is not healthy, it's contaminated water they are living in. We don't know what is going to happen. Maybe there will be no fish, maybe the water is going to die. So, I state as an Elder, that I work with the mine people for a very long time. In the future, you said, you are going to start the vegetation again, even some years there is lots of snow and the water goes really high and it's going to touch all the contamination on the land. Even after the closure of the mine, there should be someone monitoring for at least 20 years, or something. So, if there is anything that is not right, it has to be reported, and if you work for the benefit of all the people, and the mine you have to do a good job working. I don't keep things to myself, it doesn't make me feel good when I know there is something wrong and I don't talk about it. So, I think about the people who are sitting behind me back home so now we have youth here I am very happy to bring some youth here because they learn from us. As people, we love our land, we love the water, [and] we love the animals because that is our life. This is why we don't come to meetings as often as we should, because of the pandemic. So even if there is newsletter going around a lot of people will find out what the TK Panel is doing.

Maybe, we will get some new ideas from other people. So this is why we are here as an advisory for the mine. This is what I want to say, and I thank you for letting me speak. Mahsi Cho.

Gord: That is a great introduction to what we want to do over the next few days. Listen to ideas about how to close the mine and how to monitor and demonstrate how the mine has been successful or not at closing.

Barbara: Yesterday, we were talking about the mine, and the overview of it, and one of the gentlemen that presented on the environment, he works for the environment department. I asked the question do they check the fish when they run before the Diavik reaches the Coppermine River? He said no they didn't, they don't test the fish after it goes into the Coppermine River. I want to make a suggestion: why not set nets at the Coppermine River, test the fish and look at the fish and see if any fish going down the Coppermine River are coming down from the lake, and see if Lac de Gras is contaminant free. Just to look at the fish, because there were times when we caught fish around Kugluktuk, and they were sick, scarred, or with sores. I'd like to get an answer from someone if the fish were coming from Lac de Gras. Thank you.

Gord: That's a good follow-up from yesterday, from Shawn's comments. The Coppermine River comes out here, and goes all the way north, about 300 km to Kugluktuk. The question was about the fish runs that come from Kugluktuk, [go] down, and go back up? And do we monitor those fish runs? And the answer was no, we don't monitor those fish runs. But what we do monitor are the fish in Lac de Gras. We started monitoring the large fish in Lac de Gras. But now we monitor the very small fish that live their whole lives beside Diavik. The reason that we do that is because from the science perspective, you mentioned dust coming off of Diavik, or contaminants coming off of Diavik. If those are there at levels that might harm fish, they'd harm

the ones right beside Diavik first, rather than the ones way down in the Coppermine River. So, we are looking at those first, and then we could look further down if there were effects there. But we are not seeing effects from Diavik in the fish right beside Diavik. I know there were lots of comments from last year's fish camp with the fish in Lac de Gras, and the parasites in Lac de Gras, and the skinny fish. It was surprising to me that the panel was seeing that for the first time. We have been seeing that since before we got there. When I first got there in 1996, that was one of the first observations we made was how skinny they are, and how high the parasite load was. But that is the scientific reason why we monitor close to Diavik, and not closer to Kugluktuk. We know that Kugluktuk has its own monitoring program with the char there, and we have been helping some of the scientists with those studies. But that is not the best place to monitor fish for an effect from Diavik.

Barbara: Where would be the best place?

Gord: The best place is to find the fish who live their whole lives right beside Diavik. So, it is a scientific approach, those little fish that live beside the island and they spend their entire life there. If there was something in the water that was going to affect the fish it would affect the first. That is why we look that, that is where the science looks.

We can talk more about that, and whether there is a different way that we can look at the fish from a traditional knowledge approach that would complement what we are doing from a scientific perspective.

GORD PRESENTING

Lutsel K'e Elder: So, when I travel my name is [redacted], but when I am at home my name is [redacted]. So, my name is [redacted], so if you come to my community after the meeting is over you can call me [redacted].

When you do your recycled water, [and] drain it back, is it beside the north inlet thing that it comes back out? After my meeting at the fish camp, and before that, 2018 or when the last one was, the fish were not healthy, and the weather was bad, so we didn't go out in the boat but instead fished from the shore. I remember that the two young boys were catching fish and we were looking at it, and the fish were not very healthy. Last year, my sister and I put nets in the water, and we brought the fish back. Almost all the fish were not healthy, and it made me really think about how long the mine has been there, how long they put the recycling water in there, how much dust that is flying, all those little insects that live at the bottom of the lake. The fish have no more food, maybe, because they are skinny, they are not healthy anymore. I did talk to some of my Elders because I took pictures and I brought them home and showed them to them. Just by visiting, or talking on the phone, I keep explaining to them that I don't think this is good. When you said the first time the mine opened there was stuff on the fish, but at that time I think that the fish were healthy and you didn't do too much of the recycling water in Lac de Gras, that is what my traditional knowledge tells me. The fish were healthier before the mine started. Today is 2022, and that is a long time now and the fish are not healthy.

We go out in the barren lands, and we catch our fish, it is orange, healthier, tastes better. This year we went to the barren lands at Diavik, none of us ate any fish there because there were so many things wrong with the fish and we all know it. We eat fish at home just about every day, and the fish is healthier. We take care of our land, we take care of our water, and we take care of our animals. And we talk to our people, our neighbours about how things are.

Here it is different, at the mine site, and I can see it. I don't think I've ever missed the meeting, except yesterday because I had another meeting to go to. I could have asked all sorts of questions there as my meeting went over because I sit on Gahcho Kué. There too, the fish is that way. The people that live off the land, and travel all over, they know when things are not the same.

I know there are Elders here that have been living off the land since they were young, and if they go back to the same place and see something, they will know the difference. I don't stay home, so I know the difference of what is wrong with the fish. I just wanted to say that because it is kind of on the back of my head, I need to leave it here, and see what we can do about it. Is it the recycled water they use at the mine site and then flush it back into the lake? And when you said the north inlet, where there is water that drains off and goes back into the water. Sometimes I think our traditional knowledge should go into the mine but because of COVID, we haven't been able to. But I really want to see how they drain the water into the lake because for me even though you say we put clean water back into the lake it kind of bothers me because you wash down your diamonds, and the PKC, and then you put that thing back there. There is all kinds of stuff going on over there, I really watch.

I ask my workers when they come back, or whenever I see them in town, 'how's things at work?' because everything that happens on our land is important to our people and our young generation that is growing up today because [of the] caribou I [travel] far away from my community, and the fish are unhealthy now. With that, Marsi Cho.

Gord: Thank you for that.

CONTINUES PRESENTING

Barbara: *Regarding PKC: Rockfill Cover slide* Right now, what are you doing to prevent caribou from going around there or in there?

Gord: We have people on-site, and when caribou come around the island which someone else mentions is not very frequent now that we are in operation. We keep track of the caribou, and we herd them if we need to, or we have temporary fencing if we need to. We keep them out now, but at closure when there is nobody there, we want to make sure they will also be protected.

Lutsel K'e Elder: So, because the mine is still open but when the mine closes and you put rocks, are you going to put rocks all the way around it, and inside?

Gord: Cut through the middle of this, we will put a meter and a half of rock over top of everything. The idea is to keep caribou from getting stuck or eating vegetation that is in the processed kimberlite. That is what we were asked to do is to keep caribou safe from ingesting, eating, or getting stuck in the processed kimberlite.

Lutsel K'e Elder: Year after year, everything is different we all know climate change. Some years we have lots of snow, and then last year our water went higher, so for me, what happens to the PKC when there is lots of snow? Is that kind of like muddy water, or fine sand-like quicksand, that can dissolve when the mine is closed and nobody is there, can that happen?

Gord: Right now, on this surface, in rainier years or snowier years, you will get wetter and muddier surfaces. That is one of the reasons why we are putting that cover on the op so it won't

be exposed. Let me come back to your question on climate change because Bobby from Kugluktuk yesterday had the same question, and I need to explain to everyone how we deal with climate change on the temperature side in a minute.

Lutsel K'e Elder: So, that PKC is very important, so if you are going to put a layer on it, rocks on it, and I don't know for how long you guys are going to be monitoring with our TK people to watch the PKC. I learned lots about the PKC, and how it is unhealthy for animals. I never saw a plant growing on it, but I know they are trying to grow grass on it by the shore when we went. I didn't walk on it but that's what I had seen. I don't really know if it going to be healthier, or not, for those plants, because maybe 10 years from now if we went and checked maybe it would be different. We still don't know.

Gord: We are not trying to grow plants. We did some tests to see if vegetation would grow. Science agrees with you that it doesn't grow very well on it, so we don't have plans to grow grasses directly in processed kimberlite. Our plan is to put rock on top of it, keep it separated from wildlife and people. We don't have plans to plant vegetation it it.

Lutsel K'e Elder: If you really want it covered, put big boulders on it so that animals don't go through

Gord: That is effectively what we are doing, is putting big mine rock right on top of it. So, thanks for confirming that is the right way to go.

Presentation Continued

Barbara: *Regarding PKC: Rockfill Cover Slide* How thick is that rock cover that you are putting on?

Gord: about a metre and a half.

Presentation Continued

Gord: So, I have a couple of questions for you. First do you understand it enough, you don't need to work out how we build it, but if we build it with a metre and a half on top, is that a good closure landscape for this island? And if you were going there in 10 years time, what would you look for for success?

Métis Elder: Any dead caribou around?

Gord: Yes, a stuck caribou would be a good indicator. A big crack or a sinkhole would be a problem.

So, Peter, I don't know if now is the time, but what we have done in the past is that now is the time to talk about your ideas going forward. I usually leave, so you don't have to talk in front of me. I just want to make sure that I answer your technical questions.

Joe: I don't have a question but just something to think about. You know, I travel all over the place, and I see a lot of development like this when I talk to people in different countries. I was in Mexico, and I look at what happened there, how a company will come in, similar to this, and not talk to people. Mines have started out near Great Bear Lake and left all kinds of mess. I talked to people, on the other side of the world, there are other places where developers never

560 talked to people; just did what they want and left, [and] just took the money out of the ground. I
561 talk to a lot of people, and I have seen that happen. We are lucky here today that they are
562 talking to you here today, in other places where I talk to people nothing like that ever happened.
563 Just started a mine, and never listened to questions about water. But here we are different, we
564 are lucky that companies come in and tell us we [want to go] through this exercise. I have seen
565 this before so many times, we have met with them many different times. I know what he is
566 talking about, cause I heard it over and over. But we need to work with them to do a good job
567 that will last for a long time.

568
569 You asked about climate change, I quite often worry about climate change. Will we get a longer
570 summer and shorter winter? I worry about that stuff, and we ask a lot of questions about it.

571
572 But they are here and working with us, which is good. I just want to share that with some of you
573 because I have been in many places where company will come in and not talk to people, they do
574 what they want. From my side, I am kind of waiting for some of my people to come in because
575 there are supposed to be other people from Behchokò. I don't want to get ahead of them, but you
576 know, I have been saying to our people, there is going to be a mine coming in. I saw this over and
577 over, a mine will come in, they start development from the ground right to where we are, and they
578 come and do what they want.

579
580 Now we are talking different in Tłıchǫ, instead of them coming in and developing what they want,
581 why not be part of it, owned, part of it. That is the way we are talking now. I am getting ahead of
582 my government. I am saying this to my government now. I am saying money comes from the other
583 side of the world and invests up here taking all the money and the diamonds back down south,
584 not leaving anything up here. I see that happen over and over, and you and I remain the same.
585 We keep saying what we are saying, go to meetings. Most people come out here and take all the
586 diamonds out that they can see.

587
588 I went to BHP one time, and I asked the president, there is a place out there where they are
589 sorting out diamonds, I was looking at them from atop, and I asked the president if I could go
590 down there and look at the diamonds and he said, "No". You know what I said? I said, "I didn't
591 come all the way from Rae just to look at your operations." They said, "Okay, you can go down
592 there." I went in there and I stood like this looking at diamonds like this. I went around and Charlie
593 said if I get too close, they would have to strip me from head to toe. I never asked how much
594 money it was. I asked the person and he said, "No" to begin with, and I said, "No, no I am going
595 to go down there." They took me down to Mexico, to see another plant down there. He said, "Joe,
596 we spent all that money.", and I said, "No, you take all that money from my homeland, and you
597 use it to fly me down. You're not spending any money."

598
599 We are learning as we go along. I saw mines coming up in our area. I told the government to go
600 this way. Why don't you ask a company to put money up front so that there is always money
601 there for us to do a proper clean up. Instead of me talking to you, that's the way it should go.
602 What they are talking about it because we went over it, and we know what is going to happen.
603 So, you can ask questions. It is good to ask question[s]. If we don't, how do we know what
604 is going to happen in the long run?

605
606 **Métis Elder:** Yeah, but all mines are supposed to be like that. Even Giant and Con had money
607 set aside but all these companies who were bought and sold, bought and sold, kind of
608 disappeared.

Joe: How many times that mine company is sold to different people. And they think different too, that is another thing we face.

Gord: All really good points. Joe, you have been involved with a lot of mines. Unlike other mines we are bringing this from operating to closure. Rio is very committed to closing this mine. Even Rio used to do much more of the 'you sell it at a certain point'. We are definitely taking this all the way through closure which is why we are putting a lot of effort into it. We want it to be a showcase. We want it to be successful. So, we need your help getting it to success and showing success.

Barbara: Yesterday, one of the gentlemen talked about how you used Ekati as an example of how they closed a mine. Can you explain a little about how that went?

Gord: I think the example you are referring to from yesterday was about the underground mines and what we are going to leave, or take out, from the underground mine before they get flooded, and Ekati has done that already, not sure which pipe, and Snap Lake has done that already. That approach, of leaving some things behind with the approval of the inspectors and the land water boards, that is what he is referring to as the success. That is the only closure that has been done so far on the underground mines. We will be in the position to do that on one of our underground mines next year.

Barbara: Have the sites been tested again for any contamination?

Gord: Good question, I don't know the answer to that. I will have to see if they have any info on that, on demonstrating the success of the closure.

Lutsel K'e Elder: On your last comment, before you started talking to other people, I heard you say, don't worry about it, that we are going to be working on it, like your PKC cover. I worry about everything that happens on my land.

Gord: Can I clarify what I meant?

Lutsel K'e Elder: Because the way you said it, and I wanted to speak right away, but then Joe started talking. We sit here and give you our TK with Diavik to work together. When you said don't worry about it, that is not the question I wanted to hear, I want to work with you. We all want to do things to help, to have healthy water, healthy land, healthy plants, healthy animals after the mines closed. But when you said don't worry about it, we are working on this, and this is how it is. And for me when you said that word it kind of triggered me off. I thought, "Why am I here, giving you my traditional knowledge, when I want to work with you?" We have to work together, you guys leave Diavik, my own people in my own community, people from Yellowknife, people from Behchokò, all the Dogrib people live all the way around that area, and its our land. We live off the land, and the animals, and the fish, and the healthy water. Those are the things I want to see healthy, because once the mine is closed, I don't think you are going to come back unless you come back to my other land to destroy because it goes on, and on, and on. Why do you think we have Thaidene Néné? To protect areas that are more important to us. I just wanted to say that I have lots of things to say. I can't wait until you finish your presentation. Marsi cho.

Gord: What I meant to say, and you can worry about it if you want to, but I didn't want you to worry about how we push the rock out, like what equipment is used, how we do it safely for us

to do that work. If you have ideas or want to share information on that, people do, but I would rather you focus on what it looks like at the end and how it is going to protect the land, protect the caribou, and protect the water. What I meant is you don't need to worry about which dozers we use to push out the rock.

Lutsel K'e Elder: Okay if your dozer sinks in there, we don't have to worry about it, but you will worry about it. I just don't want our caribou, our moose, grizzly bears, and stuff like that sinking into the PKC.

Peter: Okay thanks Gord, and basically Gord has given both presentations for the day so our task now is to provide the input on the PKC, and the advice you, as a group, have. So that is really our job for the day. So, if we have any further questions or need any clarification then we can certainly ask them again. The only thing we are doing as far as facilitating is holding a safe space for everyone to speak. We haven't heard from some of the youth yet, but we will make sure that we get to everyone. I think we had one or two people who are tuned in online. Everyone gets the chance to speak, and everything is important. We are recording questions for follow up. There is no such thing as a question that shouldn't be asked. If you don't understand an acronym, or a word, just ask. If we are better informed, the better advice we will give. Keep in mind that everyone around the table may have something to say, and we want to give the time for that. The guiding questions for the rest of the day are:

- What are your thoughts about the proposed cover plan?
- What do you want to see or not see in the future to say that the cover is working?
- Are there any unanswered questions?
- What do you want to see to make sure that the cover is good? How do we want that site to look in 10, 20, 50 years from now?

LUNCH BREAK

Peter: For the benefit of the people who have just come, so that they know who is who, we will have them give the longer intro that we had earlier, and everyone else can just quickly go around and say our name.

INTRODUCTIONS OF NEW PARTICIPANTS AND REINTRODUCTION OF RETURNING PARTICIPANTS.

Jack: Jack Kaniak from Kugluktuk. I have been involved with one TK session in 2021, [the] summer camp. I was born in the Bathurst Inlet area, grew up around there and went to residential schools, and then moved to Kugluktuk over 26 years ago, and have been there ever since. I have been a member of the EMAB board for about 10 years probably. Success for me today, would be discussion to come up with hard recommendations. Thank you.

Peter: Claire is pulling out any recommendations, if someone says something should be done, she is flagging those, and we will discuss them later today, or at the very least on Friday.

Dylan: My name is Dylan Price, and I am here as an observer with EMAB. I live here, in Yellowknife. This is my first experience with the TK Panel, so I am very thankful and happy to be here. Something about me, is I love being outdoors, going camping, being in a canoe. Success for me would be some good discussion and to see some recommendations come out of it.

Violet: Violet Campsell- Blondin, board member representing EMAB from Tłıchǫ government.

Peter: English is channel 1, Dettah is channel 1, Łutsel K'e is Channel 4. For the newcomers, we have some prizes, everyone's name has been put into here and we gave out some earlier. We will give out one right now, and then get into the discussion. We will get Elder Francis to pick one then get into the discussion. Sarah, you get to go to the table again. We will have one or 2 more draws before the end of the day.

So, we had the presentation this morning on the overview, and video, and then Gord presented on the Processed Kimberlite Cover. For those of you who have come in, we will make sure you have a copy of the presentation. So, what we want to do now, whatever order you have, we will allow everyone the chance to speak and give their thoughts on the proposed plan: what you want to see, don't want to see, and in the future what you need to see to know its working. Myra is here to answer questions, and what she doesn't know, she can pull Gord back in to help answer. And then what you'd like to see to make sure the cover and the PKC closure is done good. That is what we are going to spend the rest of the day on.

I will leave it up to you that if we get to 3:30 and that is enough for the day we can leave it at that or if you want to move forward and hear the next presentation, we can do that. We will leave it up to you because the important part of this whole three days is getting your input on what Diavik plans to do for the closure. That is the important thing that we want to do today. We can open it up and begin with any comments, concerns, things that sounded good from the plan, things you want more information on, anything at all. We did hear about some of this earlier, and Claire is recording those earlier comments, but we can add to them now and those will inform the recommendations on Friday.

Barbara: I am just trying to get an idea of how big this thing is, the PKC area.

Peter: Myra is just finding out now. From looking at the pictures, probably 300 to 400 m by almost 150 to 200 m.

Barbara: can you tell me in miles?

Peter: A quarter mile by another quarter mile.

Myra: The perimeter is about 6 kms around.

Peter: Oh, so it might be bigger than that. If you went all the way around the outside, it would be about 4 miles or 6 km. Violet, do you have a question?

Violet: I just made a comment that the consultants have to be quite versed about the project, because you are giving information to the Elders here. And the question was about 'how large is the open pit?', so they can have an idea about what cover, and how big the cover needs to be. I know sitting from the Tłıchq government, we went with this information when a representative from Diavik came to Tłıchq government to provide questions and we provided some answers from our Elders to Diavik.

The other matter is that all the Elders that are sitting here have their Indigenous government that they are reporting to. So, how is Diavik going to treat comments from the Elders TK panel and Indigenous governments that are submitting questions to Diavik.

Peter: Do you want to answer Myra because those are directed at Diavik?

761
762 **Myra:** Det'on Cho Environmental is here to facilitate the session and we will work to answer the
763 questions that participants have, including the one about the PKC facility. Then, like all of the
764 previous processes with our TK panel sessions, there will be a report that is summarizing what
765 we heard today which will include the recommendations that this group chooses to put forward
766 to Diavik. And then the follow up process to that summary report is that Diavik provides a
767 response to those recommendation, but we will also have an opportunity to provide initial
768 response on Friday when we hear those initial draft recommendations.

769
770 **Peter:** And you have contacted Gord to get those exact measurements?

771
772 **Myra:** We are working on it. It is sort of a moving target, so I think they want to be quite precise
773 in the answer they provide, so stay tuned.

774
775 **Peter:** As we remember, back on the presentation, on what Gord was talking about on how they
776 are going to layer the PKC to freeze it back, and a metre and a half of the fine gravel, and 6 m
777 of the other rock, and he talked about how it as going to be sloped for the caribou, so that they
778 could pass by. Any other questions, comments, on that whole process? Jack?

779
780 **Jack:** For the fine PK, that is going to be frozen in this containment. I believe in the past the
781 extra fine processed Kimberlite was going to be stored underground. What happened to the
782 original plan on storing PK underground, or are they going to be sticking with this plan, with the
783 rock cover? I have another one after that.

784
785 **Myra:** Thanks Jack. Yes, a number of you will be quite familiar with the PK to mine workings
786 project. And that is meant for ongoing PK and EFPK. That slurry will go to pit 418 when we
787 close it later this year. So, we are not going to re-mine the stuff that is already in the PK
788 containment facility but any new PK that we have from our processing will go to the 418. Does
789 that answer your question?

790
791 **Jack:** Yes. This containment of fine kimberlite will be covered with rock and frozen and covered
792 with rock. I'm not too sure how deep the fine processed kimberlite is in that containment. I am
793 sure it has been mentioned but over time climate change comes into play here. So, if over the
794 years the plan doesn't work, and the fine PK melts, what are the contingency plans for such a
795 scenery?

796
797 **Peter:** If I remember correctly what Gord said earlier, the fine kimberlite was about a metre and
798 a half thick, and then on top of that was 6 metres of the rock so that that would be frozen. We
799 should ask Gord whether they are putting any thermistors because that would be important to
800 know, because then you'd know if it is freezing or if it is thawing. It might be good for Gord to
801 come back because there are a number of questions related to the presentation that would be
802 good for clarification. And, it is better for it to come from the man who has been working on it for
803 25 years. That is what he had said earlier though, Jack.

804
805 **Jack:** Okay thank you [inaudible] that stuff goes all over the place.

806
807 **Peter:** When Gord gets back, we will have him answer that because they must have a plan. He
808 did say that in order to freeze the entire space back it was going to take 30 years to freeze back.
809 Because we know with permafrost that freezes from the bottom up and the top down, then each
810 summer only the top layer should thaw, and the rest should stay frozen.

Albert: I've seen something like that at BHP mine, of how they were going to do it, we went there to look at how they were going to do it. They gave us a sample. We went there and then they put sediment and sand and then they cover it, [and] then they put rocks on top. Every summer and all year round they should keep watching that because the climate changes and even if there is frost in winter. Now the frost goes on the land and from the water, it goes to the land. And sometimes there is some grass and vegetation that grows on it. And there are animals that eat the grass, and the brushes and twigs, and when something is contaminated it's a cover there, and some day and sometimes there will be geese, ducks, any kind of waterfowl that will eat from there. Also, the bears and some animals will eat the grass so we have to watch these because the animals might get sick from it. And when there is some chemicals that are not good for the animals. Even though the grass is growing, its still contaminated grass that is growing, and then the animals eat it, and the pit too, you are going to fill it up with water.

And the once you put water in that pit, that pit is going to be there for a really long time. The water is not moving because it is in a containment and then you put all the chemical that is in the water, the water might die and then it will be no good. There are animals that drink the water also, and the birds that go there and land in the water. We have to think about it because in the future there might be hardly any ducks or anything. Us hunters that live off the land, we hunt for all these animals and if we get something [that] is not good we can visually see it but sometimes we don't now. So, I would suggest that there be monitoring there for a very long time, and they should even test all the vegetation around there that is growing after they fill it up. The bottom of the water, the sediment, fish eat that, and even the sediment will get contaminated although there is lots of water, on the land it is the same thing. One little leak, and it's going to spread to a big part of the land. I know you say it is going to be frozen, but the rocks will be very hot in the summertime, so there will be a lot of heat from the rock. I just want to prevent the animals from getting sick and poisoned by these chemicals.

Another thing I was thinking about, you said you are going to leave some of the equipment or water underground and you are going to cover it again. So, when there is metal that sits in water for a long time it gets so rusted and decayed. The water even underground keeps running. What is going to happen to the underground water? So now we are just thinking of how we are going to do the closure of the mine and see what is going to happen in a few years. So, the mine company is trying to think of the best way to do things and nobody knows it because it hasn't been done, I think or if it has, we didn't hear about it. They take a lot of money out of our land and all the animals that are on the land it's all our [inaudible], we consume these animals that is why we are so concerned about it. So, this is what I wanted to say, and I thank you for listening to me. Mahsi.

Peter: Mahsi Albert. Gord, earlier we had a question about the actual size of the processing containment area.

Gord: I am not quite finished my homework on the size of the PKC. So, in the north south direction it is 1.6 km, and in the east west it is 1.5 km, and all the way around is 5.2 km.

Peter: 1 mile is 1.6 km and 5.2 km is about 3.2 miles.

Gord: I hope that helps. The other question is with the hazardous materials underground. Anything with hazardous materials and hydrocarbons comes out of the underground mine. What stays in is ventilation, electrical cables, fibre optic cables, PVC pipes, there will be some metal that is left in there. All the structures of the underground tunnels have metal meshing, concrete,

that gets left in the underground. Those have already been done before at Snap and one of the Ekati mines and we were going to follow up on if there has been any water monitoring on that.

Peter: Before we go to Barbara, Jack had a question about what was going to be left in the underground or whether one area was going to be underground?

Jack: My question was that the PKC will be covered with rock, like you say 6 metres deep. Under that will be very fine PK, I'm not too sure how deep it is, but over the years the climate change scenario will come in and I'm just wondering if the containment facility melts are there any contingency plans to fix that up.

Gord: Jack, I don't think you saw this slide this morning, but this is a cross section, like a cut away, through the PKC and what the figure shows are the dams on both of the sides, and then it shows the grey material on the sides are this PK that is a much more solid, a fine sand, that we can drive on right now. It is frozen but even if it is thawed, it is a solid competent material. But what I think you are talking about is the center, the toothpaste-like material. So, the closure plan is to allow the surface of this material to develop a layer about 6 m thick of ice only so that we can then access it and push a rock cover over top that will be able 1.5 m thick.

What happens over time is the toothpaste like material will compress and consolidate and get stronger. And we are allowing for the settlement and that change over time in the engineering design. And we are evaluating all of this in a climate change scenario. So right now, all the blue is showing everything that is frozen, but if you went into a very worst-case condition some time in the future and it all thawed, by then, this material will have compressed enough that it can support the rock. What we would have, is a bigger depression in there than what we are designing for, and the contingency would be to go back and lower the spill way elevation so that they water would drain off the surface. It is all still contained and surrounded; this is all rock that stands there even if it is thawed. It will still hold all the material even if the worst-case scenario of a thawed environment.

You also have to imagine that the Lac de Gras area would be a very different place without permafrost, and this probably wouldn't be one of the bigger issues in the area. A complete loss of permafrost in the area to the level that this would thaw would be a very major change to the environment of Lac de Gras. That is what we are evaluating to make sure that it would stay where it is in that climate change scenario. A big part of the engineering design is climate change and predicting what it might look like. Good question, Bobby asked the same question yesterday.

Peter: Barbara, you had a question?

Barbara: I think that answers my question. Like rock in a glass of water it would sink, and the water would come up. In the worst-case scenario, the slurry comes up because the rock didn't withstand the fine ground material and the heavier material.

Gord: That toothpaste like material, don't think of it as water because it isn't water down there, but you are right if it doesn't have enough strength the rock will sink in, and the material will ooze around the side as that is what we are trying to avoid is it oozing up the sides and becoming available for caribou to get stuck in or to est. Some ways we are looking at that from if it thaws is putting down a material below the rock, it could be a fibre, so that if it does settle, the PK wouldn't ooze up around the rocks. You've got the right idea it just isn't water underneath, think of it as toothpaste.

Peter: Thank you, Gord. Any other comments or thoughts based on the presentation earlier?

Peter Sangris: We are going to be working on refilling the open pit. In the barren lands I thought it was mentioned that it was going to be a thick rubber layer, a cover. Are you going to put something there and cover that rubber, or some other plastic you put there, and make the rocks, or the sand, or the gravel, stick to that first then put the rubber on there? How thick is that going to be?

If the cover is there, and then you pour rocks on it, you have to overlap the covers so that it wouldn't be leaking water or chemicals from the open pit. Are you going to use some form of sticky substance so that the covers don't move around or slide around when you are dumping rocks on there?

I think it takes a long time for plastic to deteriorate, depending on what kind you use, so maybe it will be good for a good many years. At Tundra Mine they did that kind of a work, and I went on a site tour and had a look at it and was wondering if something similar was going to be done. And I know that they try to do good work and the way that it looked according to that picture I think that it might work for a while, for years, but I don't know if you are comparing them to other mines, and other places that do similar work. I just wanted to mention that because I went on a site tour.

Gord: It's being translated as open pit, it's not the open pit it's the processed kimberlite containment. That is the cover we are talking about. It is this area (on map) we are talking about. For most of it is just pushing mine rock, like you are making a road that goes over all of this area. There is no rubber and no plastic. It is just rock being placed over a solid ground. These are the mine pits so there is no cover on those, they get filled with water from the lake. I was probably confusing when I talked about it in the beginning, but they are two very different things. The only reason for the cover is so that caribou and people don't get stuck in the toothpaste. Thanks for asking the question.

Peter: Does that answer the question?

Peter Sangris: What cover? The ones that you are going to put only the rocks on the water into the open pit. I am not referring to the open pit I am referring to the yellow part. I know there are two different things. When you are talking about that whole site area, you mention the yellow coloured one, the red one, and the blue one, and some people are getting confused about what you are saying. The yellow colour one is the process kimberlite and the blue one is the open pit you are going to put water in that, right?

Peter: Yes, anything else?

Lutsel K'e Elder: I don't think we should call it toothpaste. We have quicksand all around our area. When something falls into the PKC right in the middle its like a quicksand where you fall in. You have to try to make it so the Elders understand what we are talking about. It kind of makes it hard for them to understand what they are talking about.

Peter: Good point, maybe we can call it mud or quicksand as a better description.

Lutsel K'e Elder: I don't want this mine to be like any other mines. When we started building Diavik, Ekati, Snap Lake, Gahcho Kué, and Giant Mine and Con Mine they left the metal underground.

Today, it is not like when I was young. Climate change, things melt. And putting metals underground, leaving it like that I can remember this when my parents were still alive, and we had lots of Elders in our hall in our meeting when we negotiated with mining companies and in there I was at the meeting. That was my first meeting I ever went to, because my dad asked me to understand what they were talking about and listen to your mom. So, when I went to a meeting, they said whatever we bring there, we will take out. My mom passed away 2004, and some of the Elders that said thing for TK to Diavik, today they don't keep the words of our past Elders. For me, it's like the negotiation we did with them. They didn't keep their words because you said, "Oh, we are going to leave, it doesn't matter if it is not going to be the same as any other mine." When you say something to us nice and clear, it comes in this ear and never goes out the other ear. I keep it. Even the Elders when they speak to me with all their TK of how they say things, and how they do things. Even in my meetings that I go to I write it down and I listen to them. It is not for me that I am speaking today, it is for my young generation that is sitting right next to me. How are they going to be living later on? And for my grandchildren. That is who I speak for when I sit at the table. Thinking about them because we won't all be sitting here in the next 20 years, it will be different people, young people. That is who I speak for. So, when we ask, don't put anything underground, take it back where you got it from, recycle it, give it to the people in the community who want things. Because of COVID, everything is sky high, your gas, your rent, your groceries that we live on.

Our animals are declining. We have to think about those things. I just want to say this, when he says mud or toothpaste it should be clay or quicksand so you can understand it more. Because if an animal goes across it will fall in, it's like a quicksand. I just wanted to say that, marsi cho for listening to me.

Peter: Mahsi [redacted].

Lutsel K'e Elder: I have been to too many Diavik meetings, Ekati meetings, Gahcho Kué meetings. My next meeting is Snap Lake, I am going to be sitting there, they did spill fuel there so how do we think we feel when we hear that. It is important to my people, it is important for our fresh water that we drink at home, for our animals, our land, for our plants and all the insects that live in the water and everywhere else. That is why I sit on the board. I don't sit back and not say nothing. Don't sit back. It is time for you to say something.

Peter: That is why Diavik has brought everyone into the room, so they can say something. Just to make sure we have allowed the chance for everyone to speak, we will go to the youth next. If you don't have any comments, that's fine, but we want to make sure that everybody has a chance to speak or make any recommendations. Because Diavik wants to know what you want to make sure happens, or what you don't want to happen. Anything from the youth?

Kelsey: That PKC is that mud or clay material contaminated?

Peter: Gord will answer, but I believe not.

Gord: Contaminated is a very hard word for me to interpret. I would say no, in the sense of the word, I would say no, but it does contain components that are different than other rocks around it. Like different levels of iron or nickel than other materials at the mine site but it's not something

that if it rains on it and runs into the lake that there are any elements on it that would be hazardous to caribou or aquatic life. The simple answer is no, but you have to remember it does have a different chemistry than some of the other rocks around there so to some people, and this is why we are covering it, to some people it is a new material. Kimberlites aren't very common on the surface, so they think that it might be hazardous to caribou so that is one of the reasons we are covering it. It came out of the pit, it came out of the ground so all we have done is crush it up and take the diamonds out.

Vikki: What about the groups that go to these areas for recreation, hunting, and fishing? If there are any environmental impacts from this containment plan, how, and to who will it be report to?

Gord: We are responsible. Your question about future use of the area, not sure if you are aware, but [it is] something we are trying to develop with the communities. On the water side specifically, is culture use criteria. From a TK perspective, how could an Elder and TK holder go to the site and evaluate the water to determine if it could be used in the future for traditional use. We are trying to develop what that criteria could be so that anyone can go out and do that. And the reporting would be back to us, we are still responsible for it. Good question.

Peter: There is also the entire monitoring program which Gord will present tomorrow will identify other groups coming and using it. There will be a monitoring program from several years after that. We will touch on that tomorrow.

Jack: What Gord just mentioned that there is not contaminants in the PKC, but there is. That's why they are trying to keep it out of the water, we need to know what's in there. We need a breakdown of the chemicals in there and a breakdown of different rocks.

Gord: Jack, the chemical composition of all the materials on site have been reported since we started. It is in all the closure plans and EMAB has it in all the reports. I can put a table of numbers for you but I'm pretty sure that is not what you want.

Jack: Thank you, we are aware of the chemicals, but the older generation here would like to know that as well. Thank you.

Gord: If that is a request to see the chemical composition of kimberlite, I can do that.

Peter: Yes, let's do that.

Peter: Gord is going to explain the table of the chemical breakdown of the kimberlite because Jack wanted a little more explanation of what made up kimberlite. Gord is going to explain this table in plain language and how that forms quicksand.

Jack: When you explain them, can you point out which ones are dangerous to wildlife?

Gord: Jack asked if I could provide a table of the chemistry of the processed kimberlite. What are we calling it, quicksand?

Elder: The PKC has all kinds of chemicals in there but when you put it on the tailings pond at the PKC-

Gord: This is the kimberlite material that we are trying to put a cover on.

1065
1066 **GORD PRESENTING**
1067

1068 **Gord:** Everything is hazardous at certain concentrations. The best example I can give is that
1069 coffee will kill fish. Anything up here can be hazardous. Chromium can be toxic to fish if it is
1070 pure chromium. Iron can be toxic, but you can see that all over the place in the environment. So,
1071 it is not an answerable question the way you phrased it Jack.

1072
1073 **Albert:** It is hard to believe how many numbers are bad, good, really bad. It is hard to believe
1074 how bad is the kimberlite.

1075
1076 **Gord:** I agree, that is why I didn't present the table, but Jack asked for it. I have thousands of
1077 pages of numbers like this. The best answer I can give from the aquatics perspective, because
1078 we have done more on the aquatics side, is when we take these materials and do toxicity
1079 testing in the lab. This Panel asked us to do that testing on kimberlite 10 years ago. We have
1080 done that testing and reported back and it is not toxic to fish or benthic invertebrates living on
1081 the bottom.

1082
1083 **Jack:** I just wanted people to know what's in there, and as you can see there is lots of stuff in
1084 there.

1085
1086 **Gord:** If I were to pull up a table for gravel from the parking lot it would look similar to this,
1087 different concentrations but it would be similar.

1088
1089 **Barbara:** Have you ever seen any of this stuff in fish?

1090
1091 **Gord:** We measure fish tissue for elements like chromium and manganese and they are all
1092 there in fish. But they are all there in the water, they are there in the water you drink. The
1093 highest thing we can see in fish is mercury, but it is naturally occurring mercury in Lac de Gras.
1094 It's not from Diavik, the mercury has been in the fish in the Northwest Territories frequently. So,
1095 we see all these things but is there anything we are seeing in the fish that is from Diavik? No.

1096
1097 **Peter:** Do we have any of the quicksand material in town here?

1098
1099 **Gord:** We have it here.

1100
1101 **Peter:** Myra has that material that we are actually talking about.

1102
1103 **ACTIVITY: EXAMINING THE PROCESSED KIMBERLITE MATERIAL**
1104

1105 **Gord:** Can we go back to the picture of the PKC and get away from these numbers? Each of
1106 the jars have a different size material in it, some of them are coarser and drier and some of it is
1107 quite muddy. So, if you can imagine we deposit it up along the edge then it drains down into the
1108 centre. So, the coarse bits fall out up here and make a much more solid material but once it gets
1109 down to the centre it is just that fine material you see in the jars. So, we have left it in water that
1110 is how it would be if it was mixed up, if you let it sit it clears to clear water and the material on
1111 the bottom is what that quicksand would be and if you leave it long enough, like hundreds of
1112 years it will get more solid.

1113
1114 **Barbara:** What part of this is the slurry?
1115

1116 **Gord:** This is how it comes out in a pipeline right here just like that. 70% of all of this is that
1117 stuff. And if you let that sit, you'll see that it goes clear at the top.

1118
1119 **Albert:** The water from that pipe, where does it go to, or does it go to another pond or to
1120 another treatment plant?

1121
1122 **Gord:** The water that collects here in the middle, we pump it back and reuse it in the process
1123 plant.

1124
1125 **Albert:** The water it just keeps getting reused from that pipe? And then you are telling us
1126 that you're using that same water from that pipe, and it goes through a process then you use it
1127 again.

1128
1129 **Gord:** That process is the process to take the diamonds out of the kimberlite. We break the
1130 rock, crush the rock, wash the rock with water and take the diamonds out. As the diamonds
1131 come out, the material comes back as the coarser stuff, and the fine stuff, and then the water
1132 gets used again. It goes around in a circle.

1133
1134 **Albert:** Where does the water go after it goes through the pipe after it is used to water the
1135 pipe?

1136
1137 **Gord:** A lot of the water stays with the material and is frozen into the ground but at closure, at
1138 the very end, we will take all of this water out of here. Then it will go to a treatment plant and
1139 then it will be discharged into the lake. But that will be at the very end after we are finished using
1140 everything.

1141
1142 **Albert:** Okay I understand.

1143
1144 **Peter:** We are still just checking to see if there are any more recommendations for the
1145 processed kimberlite containment covering. They are planning on freezing back the quicksand
1146 material, adding a metre and a half of the finer rock material and then 6 metres of the larger
1147 rock material to cover it then it will be sloped so animals can pass by.
1148 But are there any other questions, concerns, recommendations to help them do a better job on
1149 that. The plan right now is to go to Diavik in June and see that with our own eyes, pick up the
1150 rocks, don't get in the quicksand. But are there any other comments that we want to make sure
1151 we get down?

1152
1153 **Lutsel K'e Elder:** Gord, when are you guys putting the cover on the PKC?

1154
1155 **Gord:** On the outside, remember I said we practice with this, we are going to start putting
1156 material on here at the end of this year. We think we need to wait until it's a little more frozen,
1157 but we will find out next week when we run our trial. And if it [is] frozen enough now, then we will
1158 keep going so we could have this cover on in 2 years.

1159
1160 **Lutsel K'e Elder:** I don't mind us looking at it before you put the rocks on.

1161
1162 **Gord:** When we go in June you will be able to see it.

1163
1164 **Peter:** Will there my thermistors in the ground to track it?

1165
1166 **Gord:** Yes.

1167
1168 **Peter:** With that earlier question about how we know it is freezing or thawing. They will be
1169 measuring with a long string. It will also tell them how much it melts in the summer with the heat
1170 so the monitors will be able to keep track of that the entire time. Any other thoughts on the
1171 PKC?
1172

1173 **Albert:** When we go out there on the site in June, we will understand more about it once we see
1174 it visually and then we will know exactly what you are trying to tell us here. So, when you see it
1175 with your both eyes and we know what's going to happen we will have a better idea of the
1176 outcome of it. So maybe if I'm still here by June I'll go out there to look at it.
1177

1178 **Peter:** Alright Albert hang in there. We will give the recommendations back to everyone
1179 tomorrow morning. Do we want to start on the next topic, or we can call it a day? Albert likes
1180 that.
1181

1182 **Albert:** Grandpa's getting tired anyway
1183

1184 **Peter:** Okay we will call it a day and come back tomorrow at 8:30 and go through
1185 the recommendations from today and then go into the next presentation.
1186

1187 **END OF DAY ONE**

1 TK Panel Session #14: Day Two Transcription

2
3 **Peter:** I want to check with the group to see if there were any recommendations or clarifications
4 that were needed from yesterday. I want to make a correction because I confused what was
5 happening at this pile with the PKC area. So, it is about a metre and a half which would be
6 about this high, this fill would be on top of the quicksand material. And then there would be rock
7 on top of that. It would be required for it all to freeze back before it can support that rock.
8 Any other questions?
9

10 What we did last night, Claire went through all of the discussions that we did yesterday. We will
11 hand that out later to check and make sure everything has been recorded properly. She also
12 pulled out the actual recommendations that the group made about the processed kimberlite
13 containment cover. There were some other recommendations that were about the underground,
14 but we just wanted to focus on the PKC. Some of the other recommendations will be discussed
15 today or at other TK Panel sessions. So, this is what was mentioned during some of the
16 presentations, or after the presentation. Place large boulders, monitor the freezing, continue to
17 monitor the PKC to ensure that it is not attracting any animals or leaking into the surrounding
18 area.
19

20 **Barbara:** Did you experiment, I see your jar there and the slurry there, did you experiment on
21 the slurry and put the fine gravel and then the rocks on top of it?
22

23 **Gord:** I think the experiment that we are talking about is what we are trying next week at the
24 mine site, putting that material on top and seeing what happens with it. That will be our first
25 experience on the quicksand material. We have done it on the pebbly stuff, but we will be
26 starting on the quicksand material next week.
27

28 **Barbara:** But if you put it in a container and what if this happened to the slurry after they put the
29 rocks in. What if it seeps out? Can you see that it is sinking, or does it have to be in the winter?
30 When do you start?
31

32 **Gord:** It has to be in the winter to put the rocks on top or else the rocks will sink through it; it has
33 to be frozen to put the metre and a half of rock on top.
34

35 **Barbara:** You are going to start with it frozen and then keep it frozen with the layers of the rock?
36 Okay.
37

38 **Jack:** The outside wall of the containment area, I am worried about the water. How do you keep
39 the water out of the bottom of that on the wall on the outside, I have seen the way the water will
40 [inaudible] containment storing the kimberlite. Thank you.
41

42 **Gord:** So, Jack, I think you are talking about how do we know water isn't coming out of the dam.
43 As we are building it and during operation, we do have water that comes out the bottom of the
44 dam and we have been collecting and monitoring it. And we do that by actually putting a, well
45 like a pipe, all the way down through here and measuring the water that is in there and
46 collecting it. Slowly all of this has been freezing and so does all the water that is in there is
47 freezing as well. And the seepage has been going down over time, it is almost at zero now. We
48 used to have a pond on top and that was what was driving the seepage, but we took that off so
49 it is essentially zero now. But the way we are going to check that and the way you can check
50 that is to walk around the facility to check if any seepage is coming out. Good question, that is
51 one of the reasons why we moved away from the plan where there would be a pond on top.

52
53 **Albert:** The question I wanted to ask was when you are going to put the rock pile on it? I was
54 kind of thinking about that rock pile and how, like you said, you are going to put boulders so that
55 the animals don't do on that area but in the future you don't know there might be vegetation
56 growing in that area. We are always thinking about those things, not now but in the future, there
57 may be vegetation growing on it. I understand that there is going to be big rocks and boulders,
58 the caribou don't go to places like that. It will keep the animals away, especially the caribou.
59 There will be vegetation growing in that area maybe in the future. Maybe if there is grass and
60 vegetation growing the animals will go back to the area. Maybe you should circle that area with
61 boulders so that animals don't go back there. Animals don't jump over rocks. So maybe that is
62 what they should do. Because we are here as an advisory and we are also learning from you
63 and this is why we come here to help you with our TK knowledge. So, for the future, that is what
64 I'm thinking about. Not this present day, but what will become of it in the future. You need to
65 make it good because it is going to be there forever, no one is going to take it down or do away
66 with it. I am just worried about when the vegetation starts to grow in that. So can you do
67 something so that no vegetation will grow and put the big boulders in there.
68

69 **Gord:** That is very similar to what we are thinking. We think over time there will be vegetation
70 that grows there but we aren't going to plant seeds to make it happen. What you can't see is
71 that all the way around is a big rock wall that I don't think caribou could get up. It is already
72 going to make it so that caribou won't want to get on top of it. What we need to make sure that
73 where we have roads that go up that we block those off. We want to make it safe for caribou but
74 make it as hard for them to get there as we can.
75

76 **Peter:** Any further comments on the recommendations we heard yesterday? Any other
77 recommendations or any other clarifications needed from yesterday's session?
78

79 **Barbara:** When you close the mine and you say you are going to monitor the closed mine, can
80 you guys give us a real time as to how long you will be monitoring the site? Can't just say years
81 to come, I want to see how long.
82

83 **Peter:** Gord will get into that in the presentation today.
84

85 **Lutsel K'e Elder:** For me, when you talk about PKC just to make the Elders understand what
86 you are planning to do you should show it so they can understand. Like this is PKC, now you
87 have rocks all around it and if you are going to put rocks in the middle, when you show things to
88 the Elders, show it to them the way you are planning on doing it. He will show you how it can be
89 better. If you show it top-down from a drone it is harder for the Elders to understand and we
90 didn't see the walls of where the boulders were put but you know some of the people who didn't
91 go the mine site, it is harder for people to understand. Try to make it clearer and understanding,
92 and, show better pictures for our next meeting. So that they can tell you how it will be better
93 because we are the ones that live off the land and we can see what is not good for us, and we
94 will tell you. Sometimes when we go to meetings and we use the PKC and other things, me, I
95 understand it because I have been to too many meetings, but make it clearer so everyone can
96 understand it. And show more pictures, make it clearer, so that the elders can see it, so that the
97 young people can see it. She is here with us today this is her first time at one of these meetings,
98 if you show it better, maybe she can speak about what is better for us. We all have different
99 minds, but we need them to work together. Marsi cho.
100

101 **Peter:** Great recommendations, if we had been at the site that would have been better. As
102 Albert said yesterday, he is hoping to be around in June and so we will get back to the site in

June and then actually go around that perimeter and look at the rocks. That is really what we all need. There is the old saying, the map is not the territory. Nothing beats getting out there. It is like going on the land, you can look a pictures, but it is not the same as getting out there. Get on the trail, get on the canoe, whatever it is. We can get that in June and add to our recommendations. But we will also be able to see how high it is, see the test plan and add more comments then. I think we could almost include that as one of the recommendations, that when we are there in June that we will have other recommendations. Anything else before we move on to the next presentation?

Kelsey: Is the whole PKC going to be covered with liner?

Peter: No, it will just be the frozen materials in the jars and then 1.5 m or roughly 5 feet on top of that with rock and that rock was taken out of the pit, but it is not the acid bearing rock.

Barbara: Can you just mention that, will there be a liner inside or on top?

Peter: No liner, nothing in there at all.

Albert: Looks like I'm waiting for what I see in June, then I'll tell you.

Peter: Well hang in there, Albert, we want to see you there in June. Let's take a few minutes and then Gord is going to get set up for the presentation on the North Inlet.

BREAK

PRESENTATION: North Inlet Closure

Gord: If you don't mind I want to clarify that we are not putting a liner on the top bit. Someone asked if there are liners anywhere and there are in the PKC, but it is on the edges of the dam all the way around because this is rock, and we want to make sure that it can't get through the rock, but it doesn't go all the way underneath because of the permafrost underneath. It will be there forever because it is part of the structure.

Lutsel K'e Elder: How thick is your liner?

Gord: It is a fabric, a thin fabric. It is like a carpet.

Lutsel K'e Elder: So, nothing can drain through it?

Gord: Nothing can drain through it but there could be cracks or breaks in there. Anywhere there is an imperfection there could be seepage but now they are getting all sealed up by being frozen.

Lutsel K'e Elder: Now I understand, because if you throw any fabric on anything like this and you put stuff through it later on it kind of gets rotten or demolished or whatever but if it is going to be frozen, we also have to think about climate change.

Albert: I make a road myself, put cloth underneath. The same kind you guys are talking about. I used to put the cloth where there were swampy places. So, when I look there in June, when I go there then I will talk about it.

Peter: When we go there in June, we will have a sample of the cloth we are talking about.

PRESENTATION: NORTH INLET CLOSURE

Barbara: What is the highest level of water that you've taken out from them?

Gord: This would be a hard number to think about.

Barbara: I just want to get an idea of what is the highest level of water that has been in it. Is it as big as this room?

Gord: It would be as big as this room everyday, probably more that we pump out everyday. Because when you dig a hole in the ground that is in a lake you have to keep pumping it out so we can safely mine in there.

Barbara: Eventually you will release that water if it is the same as the lake?

Gord: At closure? Yes, I will get into that now.

PRESENTATION CONTINUED

Barbara: Can you explain hydrocarbons?

Gord: When you have any drips or leaks of fuel, either diesel or hydraulic fluid, anything that comes out of a machine mostly in the mine areas they get into the water and that water comes into the North Inlet and it goes to the treatment plant. The treatment plant will remove any of those hydrocarbons and puts them back into the North Inlet.

PRESENTATION CONTINUES

Barbara: Can you tell me if that lake ever freezes?

Gord: It freezes at the top, but it is deep enough that there is always water at the bottom. So, it is about 10-20m deep in a big area here but there is always water at the bottom.

PRESENTATION CONTINUES

Barbara: So, in the meantime, wildlife can't drink that water.

Gord: Its not in the water, it is in the sediment at the bottom. The biggest concern we would have is if we brought fish back into here because they would now be exposed to those hydrocarbons. When we say safe, we want to make it safe for the fish of Lac de Gras to go back into the inlet.

Jack: You were talking about bacteria eating the hydrocarbons, is Diavik helping the bacteria grow faster or putting more in there?

Gord: Our first question was is the bacteria even there to help break it down. So, we did a study, and a full population of bacteria are there at the bottom of the north inlet working at breaking down the hydrocarbons at the bottom. The other thing that the bacteria need is

nutrients, so nitrogen and phosphorous, so we wanted to know if more nitrogen and phosphorous would help the bacteria you might remember that both are naturally occurring. There is nitrogen from the explosives residue and phosphorous from the groundwater so there is more than enough in the water for the bacteria to use. The other thing they need is temperature, so if this were in a southern environment, they would work a lot faster but they are on the bottom of the lake so they don't freeze so they are all working all winter, just slower. If we wanted to help them, we would just need to provide more heat but that would be senseless, so we help them by providing more time.

Lutsel K'e Elder: I know Barb said how about animals, all around the mining area all the water that is around the mining area that you guys take from snow and pump it into the north inlet. I know that. All the dust, explosion that happens, in the springtime the water drains down from the rock pile or anywhere in that area that you guys put it back into the north inlet. And when that mine closes, because that used to be a creek.

And now, when Barb said how about wolverines, caribou, moose, muskox and you said it was okay. You have to think ducks, muskrats, beavers, otters do dive down to the bottom. But how would they know? I don't know how long you will be monitoring. The reason I am saying this is because when I went to fish camp, we really wanted to put nets near the north inlet dam. I know it wasn't far, so we put nets in the water, my sister Gloria was there, and we put nets in the water. The fish that we caught there were not healthy, there were bugs, cysts in there. We drove there because we thought it was a better place. Because we really wanted to monitor how things are going when you guys release your water and that is what we had seen. Some of you are new in this meeting and that is what I had seen. Any other year that I wanted to go close to there, bad weather. We were lucky that it wasn't windy there last year. The water is dark, you can't see the bottom. Just so you guys know what I had seen, Marsi cho.

Gord, I asked you a question, you said the animals were going to be okay. But what is going to happen to them? I want you to make it clear that everything will be okay. But it is not going to happen so that tomorrow everything will be okay, but I don't know how long you will be monitoring it.

Gord: So, I should be clear that from the science perspective, the most sensitive to hydrocarbons are fish, and particularly the little bugs at the bottom. So, according to the science, we look to the most vulnerable to determine if the other animals will be okay. We still have to show that to you, and demonstrate the science, and you need to help us with how we can demonstrate that from a Traditional Knowledge perspective but that is the logic for why we think they will be okay. When we get those hydrocarbons to the level that it will be safe for fish it will be safe for the other animals and people.

PRESENTATION CONTINUED

Barbara: When you talk about time, maybe put in another 5 years after that; 10 years to make sure?

Gord: What we are proposing is that we would keep this dam in place until we know that the levels are at a safe level, and then we will cut a hole in this and open it up. We want to agree that this is okay before we reconnect it and allow fish to come back in.

PRESENTATION CONTINUED

255 **Lutsel K'e Elder:** So, if it is not healthier to fish, what is going to happen to the North Inlet
256 where you have a dam, and it is blocked both ways and there is water in there?
257

258 **Gord:** That is why we would break this and fill it with rocks so that the water can flow back and
259 forth.
260

261 **Lutsel K'e Elder:** So, you will open the creek then?
262

263 **Gord:** Yes, so the water can move back and forth but then the fish are protected from going
264 back and forth and the sediment will stay at the bottom.
265

266 **Lutsel K'e Elder:** Is there a layer of something at the bottom of the lake?
267

268 **Gord:** No, it is like the dykes. It has a layer of cement we would have to break but there is no
269 liner in there.
270

271 **Barbara:** You are saying that you'd put rocks there in the dam. Is that going to be like a natural
272 filter? Where water can go back and forth?
273

274 **Gord:** Exactly. Filter is a good word for it. And that is only if we, everyone, decides that the
275 sediments back here should not be reconnected with the lake. The preferred plan is to break it
276 and let the free movement of fish back in.
277

278 **Peter:** That north inlet is a fairly large body of water, is there fish in there now?
279

280 **Gord:** No, we had to remove all the fish as part of the construction, scientifically you have to
281 believe that there probably are a few in there but we have never seen any. We do test the
282 invertebrates and bugs that live at the bottom which is a very sensitive test we do to measure its
283 health.
284

285 **Jack:** The previous slide before this was contaminated surface materials, are you going to talk
286 about that?
287

288 **Gord:** The panel has been asking questions about it, but it is not easy to see.
289 It is a mud like you'd find on the bottom of a lake, the difference is it has a much higher level of
290 hydrocarbons than you would find anywhere else. So that was the presentation, so the plan now
291 is to talk about it and discuss it.
292

293 **Peter:** I think what we will do before we get into the full discussion let's take a 15-minute break.
294

295 **BREAK**
296

297 **Peter:** Okay we will go ahead and get started again. We had the presentation about the closure
298 of the North Inlet. So, what we want to, for now until 11, is just allow everyone in the panel to be
299 able to have an opportunity, make and recommendations, make any clarifications that we need
300 in order to make comment on the North Inlet closure. We have already had some during the
301 presentation but now is another opportunity to express their suggestions on what you feel would
302 be the best way to deal with the North Inlet closure.
303

304 **Barbara:** Before that, has Diavik or the mine, ever seen animals go around the lake to drink
305 water since they have been open? I am sure they have.

Peter: Like around the site? Myra, do we know what the current monitoring has seen since the mine has been open?

Myra: There is a team on the site that makes observations about that. We will have a guest, the wildlife monitoring superintendent will be with us later and can speak to that. We have a policy that when we see, we stop work and wait for the animals to move through, and they record numbers and locations. I just don't have all those details.

Barbara: I am just worried about North Inlet, what animals have they seen around that lake?

Peter: We can ask the monitoring person after lunch. We can go around the table, start thinking about suggestions for the closure of the North Inlet.

Lutsel K'e Elder: All I wanted to know is how long are they going to be monitoring the water that drains all around the mine in that area. I also asked, and didn't get a really good response, the ducks they do dive to the bottom of the lake in the springtime and feed off the bottom. Also, muskrats, beaver, otters. We don't even know if there is any fish in there or not. I know they tried to take those cisco's out of there, but I don't know. We are not at the mine site every day, so we don't know. I want to let the young people speak about the North Inlet or other presentation. Don't be shy, I used to be nervous saying I might be saying something right or wrong. My dad said it doesn't matter if you are right or wrong, you have to speak out about our land. We have to think about our fresh water, plants, fish, air. Everything that we live off of is very important to us so speak up, marsi cho.

Peter: When the environmental monitor supervisor is here, we can ask him about the ducks. And you're right there is never any wrong questions or wrong input. Everything is important to make sure what you are clear and that you have had the opportunity to make any suggestions.

Albert: When I ask a lot of questions when I don't understand, and I try to give the best of my ability to the animals that I know and lived with in the past when there was a lot of mines set up without asking the community members. Nowadays it is changes, they have respect for us. But these youth that we bring over here are going to be the future generation. They pick up your words, that is the way it is passed on. If I think about anything I will speak again. So maybe in the afternoon, when we have the presentation of the person that is coming, maybe I will listen to him and say something afterwards.

Peter Sangris: I wanted to say a few words about monitoring. Whatever concerns we have and whatever we want to ask questions about, you said that we could talk about it. The water treatment plant is very useful and very necessary that it is operating even after the mine closes. The water treatment plant should be the last building to be closed. So, all the works that you are doing to close the mine, even little ponds should be drained into the water treatment plan to make it better. So, the water treatment plant should be the last building on site so they can try to keep the water as clean as possible. We know that the mine would be closing, but I am suggesting that the water treatment plant be the last building to be close.

Peter: That is very good advice. That will go into our recommendations. Mahsi.

Jack: Getting back to the largest sources of water on site that are pumping into the North Inlet. We heard Gord say that there is natural seepage into the three pits, so they have to be pumping out that water into the North Inlet. Has Diavik ever thought about letting the pits fill naturally over

the years if they are not in use anymore, and once they are done at the site pump more water if they are not filling up yet from natural seepage. There is uncertainty about reconnecting the north inlet back to Lac de Gras if the north inlet is not clean enough. They are proposing a rock dam to keep fish out, but what worries me is if the inlet is not clean yet why would they let the water go back into Lac de Gras.

Peter: I wrote down your point about the seepage, so we can ask that later. Gord did mention earlier that the water is good, it is the sediment that is contaminated.

Jack: My worries that if it is not clean, that we will want to keep the fish out if it is not clean enough.

Barbara: I just want to reiterate again that I wouldn't mind seeing the mine monitored longer than 10 years, maybe 30 years. Until the lake is clean. I also want to see the inlet lake to see if there is any fish in there. Gord said they haven't tested for fish since they cleaned it out of fish. I am worried about our Coppermine River so I'll like to see some testing out of the lake. Test it now, and later on as you slowly close the mine test it then, when you connect to the Coppermine. Test for fish also at the site.

Peter: Thank you Barb, remember to bring that up at the monitoring session this afternoon.

Laura Jane: I do not often come to meetings where these words are used. I am learning a lot about this area. You have to do a really good job cleaning up this mine. I had a really big family, I am the only one of the siblings still alive. We were taught cultural ways by our family. We grew up living near the water and living with the water. There are animals all over, we were taught to live with them, watch them, and watch over the animals, and to only harvest one of the animals you live with if you are hungry. Even if you harvest, you have to inspect everything, the meat, the skin, organs, everything, and make sure it is healthy, look for any changes and anything that is not normal from what your family taught you was safe to eat. You can eat whatever you were taught was healthy, if there is anything that is healthy and it is not eaten or you were not taught to eat it, you offer the rest to the other animals you live with. If whole or part of an animal is not healthy, you burn it in the fire. I am worried about the youth not knowing enough about our cultural way of knowing how to harvest. When you close this mine, you have to do a really good job so Elders, youth, adults, families all feel like they can live there, and pass on their cultural knowledge there.

Joe: I think our government has a position on all of this stuff, we went through it ourselves. The staff in Rae are talking to me, I am here to observe and listen here. What we do here, and whatever the Land and Water Board decided to do there, given their approval when it comes time to closure plans, we are working with them. That is why we listen to people, we are neighbours all around that we have to respect, the water flows this way and all the way down the Mackenzie River. If our water is impacted by many different things, it will cause problems downriver that is why we work with people and listen to people.

Years ago, there was no such thing as the Land and Water Board, government just did what they wanted to do. But today is different, now they have rules that they have to follow. I know because I have been involved for many many years. A good part of my life, this is what I've been doing. I travel and watch how people deal in their countries. Our Aboriginal people are respected. Up here, we are different, look at our terrain and landscape look what we have. There is no way you or I are going to grow anything. That is why we talk about caribou so much. All of our wildlife and I have grandchildren living here in Yellowknife, all kinds of grandchildren. I

do respect them for who they are and what they are going to be long after I am gone. This land belongs to them, this land belongs to you. If you respect the land and the environment, it will take care of you. That is why I go to hearings all the time. And I learn by listening, and now the Tłıchǫ people, what they are doing is bringing a lot of young people to our meetings, I am just the only one here today, but any other meeting we go to it is important to them because who is going to talk about what we are talking about when we aren't here. We take them to meetings so they can get a good start. Because it is important, and it may have an impact on them in the future. Because I saw a lot of mines like this, a lot.

Colomac, a mining company came in and said we are going to start a mine, okay? Even though we didn't spend a lot of time with them they said a lot of good things and they got it all wrong. They left a whole bunch of mess. I flew there with the minister, and we looked at it. We had to get the federal government dollars to clean it up, that is how to works and they leave a mess. And to avoid that here is a good exercise. If we don't say anything, then they will leave, and we don't want that to happen. That's why I'm listening to you, sometimes it takes a lot out of you to go to meetings.

So, I am just sitting here because we have a government that has a position on this. We went through this for I don't know how many days. We tried to put rocks around it, we tried that at another mine, and they said no it is going to be a pond. If it is going to be another pond, fine.

Is there a similar exercise somewhere else in the world that this has happened? Can they show us an example? Has the grass grown back, have the animals come back, what is it like? Is there something you can refer me to? So that we can see that it worked over there? Maybe it is in a hot country. The landscapes are different, temperature are different. But that is something to think about, something we can look at. The reason why I say that is we have a lot of abandoned mines. I want to look at that and do the same thing here and one day this exercise that you are talking about could be used as a model for someone else, somewhere else if they do a proper job. Clean it up good, the way we said they should. There will probably be facilitators standing up on the other side of the world standing up and saying, "This is what we have done on the other side of the world, and it's working". They might say that. This exercise that we are going through might get used somewhere else. I am concerned just like you are because whatever we do it is going to have an impact. If it is good fine, we did the right thing. That is all I wanted to say.

Peter: Mahsi Joe, some good points and I have written down a few of them.

Joe: Something else, you know what I told the company? You are here now so you do a good job because your reputation is going to speak for itself. People on the other side will know if you do a lousy job so your reputation speaks for itself. This isn't the only place they want to work so they have to work with people, respect the people, respect the land. I don't like to leave a mess out there, I have been there so many times. Three days I spent out there and there are lights all over and I'm thinking, how is a caribou going to travel out there, there are so many lights. Daytime it's okay but nighttime there are so many lights.

Peter: Mahsi Joe. Any other questions or concerns? Jack?

Jack: Thank you, Gord talked about the main dyke there which is on the north side. But there is a smaller one on the south side there, is that going to be the same plan as opening the smaller one? I guess that that smaller one connects to Lac de Gras.

Peter: This one here connects to some of those smaller lakes, but they will monitor this and once it is in a good condition to open up this would be opened up to a let water come in first and then the entire thing would be opened up and I think that would be the same for this side. We will ask Gord just to make sure, we will flag that as a question for him.

Lutsel K'e Elder: You know if we go there in June, and it is still frozen I would like to see it again when it is thawed out.

Peter: We will ask the Environmental Monitor how much of that ice would be gone. What we are going to do tomorrow is discuss a good time in June that works for everybody.

Lutsel K'e Elder: Since COVID started in 2019, none of us ever went to a mine site to check it out. It is 2022 now. So, if we get the chance, we should go check it out. And all those meetings that we had to go to, or were cancelled, or postponed, or were Zoom meetings. I can't stand Zoom meetings. I am going to tell you how I feel, Zoom meeting is not good for me. I like to sit face to face and talk to people. So, for me, if I got here in mid-June or first week or the end of the month and it is still frozen then I'd like to go back and see it again with my own eyes to see how it looks.

Peter: I think everyone agrees, Zoom is not how we are used to or not how we feel comfortable having meetings. Traditionally, no matter what we discussed, we get in a room and listen to people and say what we need to say. There is a lot you don't get via Zoom.

Lutsel K'e Elder: I have another question. I miss my friend and she is not in our meeting today. Her name is Nancy. We really wanted to go ice fishing but I don't know if she will be back for the next meeting. But that is what we had been talking about, to see how fish is under the ice. But if she is not going to be here then I don't want to go alone.

Peter: We will all be there with you, you won't be by yourself. You replaced Nancy right Barb?

Barbara: I replaced her because she went on a trip. I'm sure she will be back.

Peter: One thing we are covering tomorrow, it would be good to get some information now. When in June would be good for everyone? What time period in June would be the best for everyone?

Lutsel K'e Elder: Hide camp is first week of June, and then after that I go to another camp where I do my own hide so I think the end of June would be best.

Albert: In springtime there is a lot of run off and I want to look at all the runoff and where the water goes into. Because the mine is big and they use a lot of diesel, oil, and gas and there is surely contamination on the land from that, and all the runoff has to be accounted for because of all the vehicles. And all the oils don't go into the water, they stay on top, I know this. So, when the ducks are coming in, do they land in oily water, and that oil too catches onto the grass beside the shore. The ducks come in, they eat that, I want to know how things are going. So, when you don't visually see these, you don't see how the water runs and all the fluid from all the vehicles. All the snow is just black. I want to see what is going on out there, that is my concern right now. Because even looking at a picture everything looks okay but we don't know what it is like just from looking at it. Maybe there is something that needs to be looked into. So, this is why I wanted to go in springtime, when snow is melting, because I want to see where that water is melting. Even in a small lake, or a small pond, the ducks will land there, and the animals will

509 drink the water. Maybe they are drinking the water that comes off the mine? I am going to ask a
510 lot of question this afternoon and I want to know how all the samples are collected and where
511 they go. I have a lot of concerns about the closure of that mine.

512
513 **Peter:** Myra did you have a comment on the closure to the site?

514
515 **Myra:** There is going to be a June 15th Final Reclamation and Closure Plan session. That is
516 more science and technical focused. What we were hoping is that we could share some of the
517 information from this session, so if we could meet before that, that would be great. But if not,
518 that's okay. But we can obviously do it after. With July, we can never get people to come,
519 because they want to be out on the land, and not at the mine site. But if that is when everyone is
520 available, we can make it work.

521
522 **Peter:** We will have a further discussion tomorrow on this tomorrow. Anything else on the north
523 inlet closure?

524
525 **Jack:** This is not about the North Inlet closure; it is about what is being discussed. Early/Mid
526 June would be best for our community because we aren't doing too much cause of the breakup
527 and the ice because it is not safe to travel anywhere during that period. And early June to mid
528 June is when the runoff is occurring at the site and I heard people wanting to see what. So, I
529 think that would be a good time.

530
531 **Vikki:** My classes end beginning to mid June.

532
533 **Barbara:** Anytime.

534
535 **Peter Sangris:** Anytime.

536
537 **Laura Jane:** Anytime.

538
539 **Peter:** So now what? Lunch isn't here yet, but we have discussed as much as we wanted on the
540 North Inlet closure. But, we are going to be getting a presentation from the monitoring
541 supervisor and then we are going to discuss supervising in the afternoon. Anything else that you
542 need input on that we can discuss now?

543
544 **Myra:** Do you want me to see if we can actually get folks here now? It is just a couple of doors
545 down.

546
547 **Peter:** Yeah, why don't we just take a break and then we will have the monitoring supervisor
548 now and that will give us all afternoon to discuss.

549
550 **BREAK**

551
552 **Peter:** Okay everyone we will start up again, Gord and Sean are both here now. We want to ask
553 some of the questions that the group had questions about earlier about the north inlet or about
554 some of the parts of the mine just to be able to get that covered off.

555
556 **Gord:** Thanks, I'll let Sean answer the hard ones. He has spent a lot of time at the mine site.
557 The question on the mine pits, we could let them just fill up with groundwater but the water that
558 comes in deep is not as good as the water that comes in from the lake. It has more salt content.

559 That is why we want to fill it up with Lac de Gras water rather than just let it fill up slowly with
560 groundwater.

561
562 The smaller dam on this end of the north inlet, it still stays there. It is actually built on ground; it
563 isn't built into the water. The reason we had to put it there was in case we wanted to bring the
564 water level of the north inlet up as part of the operations so that it wouldn't flow out this way but
565 it will still be there but more smoothed down, so it looks less like a dam and more like a road. It
566 will still be there, but it won't hold any water back.

567
568 The ice goes out on Lac de Gras middle of July, but the ice goes out on the North Inlet by early
569 June. Making Diavik the model is a great idea. The mining industry needs some good examples
570 of closure, Rio Tinto really wants Diavik to be a model of closure. We are really interested in
571 having a success story with your help.

572 We don't have a good history in the world of closing mines, it has only been since the 1980s
573 that there has been much consideration for closure. Diavik is a modern mine and when we
574 designed it, we designed it with closure in mind so it would be easier to close. And that is really
575 starting to be a norm in the mining industry and we are hoping to see much more success in
576 mine closure, starting with Diavik.

577
578 **Sean:** My name is Sean Sinclair, I have been up at Diavik for the last 10 years working in the
579 environment area but more recently working in closure planning. So, I know a lot about the
580 environment if you have any questions. We sample the North Inlet every 6 days for the last 20
581 years. Basically, that is all the water collected on site before we put it into the water treatment
582 plant and there are higher levels, mostly of suspended sediment and turbidity from the water we
583 collect from ponds and areas of the mine where there is a lot of dirt.

584 So that is probably the most obvious thing we see in the north inlet, also high amounts of nitrate
585 from the blasting and phosphorus which is in the groundwater. A lot of that gets consumed by
586 bacteria and algae. Then the water goes through the water treatment plant we remove most of
587 the sediment and then the clean water goes into Lac de Gras and the sediment we remove in
588 the treatment plant goes back into the North Inlet.

589
590 **Barbara:** We heard this already. What I want to know is, do you guys monitor any animals that
591 go in the water like ducks or muskrats? Have they been close to the lake or drink the lake?

592
593 **Sean:** The most common animals we see at the north inlet are probably grizzly bears in the
594 summer. Occasionally we will see caribou passing through, they don't usually stay for long.
595 There are no fish in the North Inlet, we removed them 20 years ago.

596
597 We are too far north to have the muskrats or beavers that live in the water. We do get a lot of
598 birds in the spring. There are migratory birds, like ducks, geese, swans that travel further north.
599 Around June they will be flying from the south through Diavik and will stop there for a week or
600 so until they continue their journey north, as well as a variety of smaller birds. In the summer
601 they don't stay at Diavik, they go further north. The main birds we see all summer are peregrine
602 falcons, rough-legged hawks and ravens.

603
604 **Barbara:** I used to work for the environment department in Goose Lake, east of us. We used to
605 check the birds and see if they had eggs and how many they had and if they were nesting to get
606 the bird's eggs as they go, do you do that?

607
608 **Sean:** From 2002-2014 we had a lot of monitoring programs for the migratory birds, especially
609 the geese and the ducks. So, the environment team especially during spring and walk all the

shorelines, document what birds are there, how many, what species. So, we have a long record of that but around 2014 we stopped that because there had been no change from the mine, so we have paused those programs. And then the plan will be that when we close, we will start them again to see if there is a different change when we close. But we don't have many nesting birds on site. It is mostly just migratory.

We built the 4 wind towers, that was back in 2013, and for the first few years we had to monitor to check if the birds were getting killed by the towers. And there weren't any so that was good.

Jack: Jack here, you state that Lac de Gras is too far north for those animals to go to. Kugluktuk has plenty of muskrats around, and an occasional beaver and otter.

Sean: Maybe we are too far east.

Lutsel K'e Elder: Any seagulls around the mine site?

Sean: I think I have seen a few seagulls, but they are not very common. We see ravens much more commonly.

Lutsel K'e Elder: All birds fly all over, every animal travels all over, there are also barren lands mice. They are chubby and small and swim in the water as well. If you don't see those smaller animals, you have to remember that it is climate change and those animals they do travel all over the place. Maybe it is not being monitored but those things should be, every animal should be monitor. Even you say the ducks, and the geese, and the swans, only are around for 2 weeks, but we still have to monitor them. We don't know if they were by the north inlet. You know ducks can dive. We just want to make sure that they are healthy because we live off all food, it is better than store-bought food. And if they were in the water where it is not healthy yet because you guys are going to be monitoring it during closure and then after that you still monitor for, I don't know how long. I just want everything to be healthy, safe, not only for animals, but for people that travel, because that is where the migration of the caribou used to go.

Sean: Is there a slide that shows the whole mine. This area here, we call it the shallow bays, this area is the most common for birds, especially for the birds migrating, because it melts 2-3 weeks before the big lake so that is where we see the birds most.

Barbara: How long have you been at the site?

Sean: I started 11 years ago, then I was working 2 weeks on and 2 weeks off. For the last 2 or so years I have been in Yellowknife more because there are different people who do more of the monitoring. I just help with the planning.

Albert: Now that spring is coming, we are worried about the ducks, and when you drive in winter, non-stop 24/7 trucks are moving and there is a lot of movement of the ground sediment, and there is oil, gas, exhaust, and if there is even a little bit of spillage from these trucks. Where do you dispose of the spills?

Sean: Any spills, we dig it up and place it in the waste transfer area. We have a land farm where we spread the material out and that is where the bugs eat the hydrocarbons. So, we just leave it there. It has a plastic liner underneath and there is a big fence around the whole area so no wildlife can get it, or most wildlife can't get in.

Albert: The reason I am asking this is because if there is a big spillage, or oil, and there is some leakage on the vehicle and when there is runoff in the springtime all the runoff into the pond then goes into the lake and I know it stays on the surface of the water. And there is grass there and it soaks up all the little oil too. And even that grass or vegetation in the water there, the ducks eat from that vegetation along the shore. If they eat that they might get sick and will no longer be healthy.

So, I am kind of worried even after the closure of the mine, maybe. How long are you going to keep monitoring around that area? Even for oil and gas because there are a lot of geese and ducks and waterfowl in that area that travel. Even the caribou if they go down to the shore to eat they will eat the vegetation there too.

That is what we want, we are always asking questions because the caribou and the animals that we hunt and eat and sometimes if the animal is sick and if we eat it, we are going to get sick too. Even the fish are like that if the fish are contaminated. Nowadays things are changing really fast with climate change and now the youth are going to be the stewards of the land and now what is going to be left if everything is no good by then. Because there is lots of caribou land where the mine site is right now.

So, if you are the environmentalist for the area it is your duty to look after everything and report to us. I think that is the way it should be done because I want the well-being of our people, water, land, and animals in that area. Maybe later on I will ask questions, but for now this is what I want to say. Mahsi.

Sean: I don't know if anyone has told you this, but for all of the surface runoff, it collects in the ponds, the purple dots, and we do sample that water for hydrocarbons and oil. So far, we haven't found any but we will continue to check. I agree that at closure we should continue to check.

Barbara: Is there someone that Diavik hires to help who is Indigenous? That helps you monitor the site. To help us so that the person can see that these are the animals that are going to the site. I just want to know if there is an Indigenous person there who helps you monitor.

Gord: We have had help, recently Patty Lockhart has been coming every winter for the last 5 years. He helps with wolverine monitoring. We go out on snowmobiles far away from the mine. I think the work that we are doing now is developing the monitoring plan to include more Indigenous people.

Barbara: I want to see an Indigenous person working there 2 on 2 off. We trust you guys, I am sure, but we have to believe everything.

Peter: Thank you very much, Sean and Gord, that answered a lot of the questions we had and will set us up well for the monitoring discussion this afternoon.

LUNCH

Peter: Thank you everyone for coming back this afternoon. This afternoon we are going to focus on the monitoring program before, during and after closure. We have both Sean and Gord here. We have already flagged some monitoring things that people wanted to make sure we asked those things earlier, but this will be a chance to hear what is going to be involved in the monitoring program, what's going to be involved in the monitoring program, look at some

recommendations that this panel has made for TK monitoring, opportunity to see the entire presentation and go into the discussion as we did before. Before we start, is there anything people want to clarify about this morning or any comments they want to make before we go into the monitoring? We will go into the monitoring now.

Gord: I want to start by talking about what we are looking for from all of you for monitoring. We will need to talk to you about the science monitoring that we are planning to do but what we really want to get from this group is how we can do a different type of monitoring and how we could do Traditional Knowledge based monitoring approach for closure. We have some ideas, but we are not tradition knowledge holders. We have been working with the Tłıchq, who have been doing some Traditional Knowledge based monitoring, and have a monitoring program, and have taken some ideas from there that we think could work for closure that we would like to present to you, and get your ideas on how we might do that kind of Traditional Knowledge monitoring program. We want to talk about the science monitoring, I know you are interested and want to know about it, but what we really want to do is turn it around and what could be a traditional monitoring program. And more about what you are asking about, having Indigenous people keeping track of some of this information. We think we have a pretty good idea of what we need for science, what we really need help with is how we can do this from a Traditional Knowledge perspective.

Laura Jane: We have Traditional Knowledge at the Gahcho Kué mine. We have Herman Catholique, and Kyle Enzo, and they work with the environmental scientists and they have western science they are learning. It is good that we have our own Indigenous people there to be doing the same work, not just winter, it should be a two-week on and two weeks off like how he works up there. It is important to have our own Aboriginal people there.

Gord: This is different, I understand what you are asking, but to me that's different from what we are actually talking about. What we are trying to get input into is, we would like to know how could we do it from a Traditional Knowledge perspective, not only having Indigenous people but having a completely different way of looking at the environment for closure.

Barbara: Even just being there to watch what he is doing, and he can ask the questions, why are you doing this, what will you do with the results. This is the type of question that should be monitored by Indigenous people, and it is important to us.

Gord: We will take this recommendation, but we want to talk about doing more than that. Maybe we will walk through it and see where it goes.

Lutsel K'e Elder: Can you make it so that we know where you are trying to go and what you are trying to say because there is western science and there is TK. I don't understand what you are trying to say. You say that you work with Tłıchq government, they have their own way of doing things. We sit around the table and put our Traditional Knowledge to Diavik of how we want to see things. It can't just be one-sided.

It has to be around the table that we negotiated with Diavik. We all sit on a board, and we say how we want to see things. You have to make sure you make me understand what you are trying to say how we can make things different because we already gave you our Traditional Knowledge on how we think we can make things better. I am asking the same questions again, and repeating myself over again. I don't like repeating myself. Once is good enough for me, once it is in black and white, I can read it myself at home. Can you make sure that I understand what are you trying to say please?

Gord: I will try. and I'll try again. We have tried to talk to this panel about a monitoring program for elders on the land, to tell us how the closure is performing. How is the closure performing, is it working and doing the things that you want it to do? How can we make that happen? How can we get people out on the land and observe from a different perspective whether the closure is working or not? This is not about the design of closure but about 10 years from now, 5 years from now, about having a program where people can go on that closed mine and provide observations and information about whether its not working or it is working.

Lutsel K'e Elder: Now I understand, Ok. You have a fish camp. You have our people go there and stay there monitor the lake, monitor in wintertime. You have it four times a year (Spring, Summer, Fall, Winter). That we can see what's going on. I bet you we can spend money, but I don't think that's an option but if you really want us to help you and monitor, we can bring young people and elders. It doesn't have to be for long, as long as you go. I know that we all drive a skidoo. Some of my elders do not walk and in the fall time you can have quads. Now that we are going to be spending money like that, and then monitor everything. You got choppers, you got drones that we can see that doesn't have to fly high. We can see that; all we have to do is sit down and watch it.

We are going to do that because when you first started speaking, I could not understand. Now we can spend money and see how our monitors can monitor our land. If we don't go there, how are we going to monitor? We can monitor ducks that come in the spring time, geese when they leave, caribou when they migrate, fish that spawn. We can see all of that if we go four times a year.

Gord: Do you want us to jump forward to this instead of going into what we are doing from a science standpoint?

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Gord: So, one of our commitments as well as doing all of the science monitoring is to develop what we are calling the Traditional Knowledge monitoring program. Where we mean to get elders out on the land to see for themselves how closure is working and if its working and to report back to everyone how it's working.

Gord: We recognize that different communities have different ways they want to do this so we want to use this panel as the way to integrate all the ideas or bring together all the ideas to a way that would best monitor closure. We started looking around at what the programs are, and I know there are a number of programs out there. We started looking at the one the Tłıchq is running it's called 'Boots on the Ground' tried to figure out if it was something we could adapt with your help, adapt for Diavik mine closure.

It is a program where they take a number of elders, I think it is 15 elders, they go out on the land onto an area, and they walk the land. When I ask them what do they do the answer was, "They do as hunters do and they watch everything". I was trying to get at the specifics of what they did but I heard was they look at everything and they do what hunters do and not break it down into little bits like science does, they try to look at everything. So, what I learned from this is to not make it a regimented program but make it very general and allow time for people to spend on the land, walking on the closed mine site, and for Diavik we think acting as hunters do and

walking on the land also would be going on the water on boats and doing as the fishermen do and understanding how the closure is working from the water.

Like you, they want to do a bit of science and collect samples like water or sediment, and have it chemically analyzed so that you have more confidence in the science if you see the sample collected yourself and have seen the results. So, we are thinking of a program where, for a few days, there would be some science people there as well, almost like the fish camp where they would collect, the elders might collect samples as well for science analysis.

We think one of the bigger gaps in our monitoring will be how caribou behave on that closure landscape. We were talking about the PKC and putting boulders out. We think this is something we will have to learn as we go with the closure – how the caribou will move on the landscape, how we can make them go where we want them to go or not go where we don't want them to go. Being there will be hard because we need to be there when the caribou are there so we can see how they interact with all of the new landscape features on the north country rock pile and the PKC. We have talked before about the cultural use criteria and these were developed with each of your communities to assess how you might look at water to decide if it is good or not good.

Barbara: You talk about caribou and how you want to watch them, and you have not started. There are books out there that Kugluktuk did on caribou, on how they travel, the trails they went in spring time, and winter time, and the knowledge that Inuit have, our people, and I am sure there were others on how Inuit and caribou are involved and others I guess with caribou, have you guys ever read any books on or found anything on caribou in the north?

Gord: From before we started mining, we got lots of good information around the Lac de Gras region area, and the Bathurst caribou herd and where they go and where they went on the island before Diavik built the mine so we do have that original information. We think things have changed, we have changed the landscape, so we want to write a book on how the caribou will move now on the Diavik mine site in the future. So, the same idea but for the change in the new landscape. We would add a water piece which is not something we have seen in the other programs we have looked at. It's not in the Tłıchǫ program the Tłıchǫ government has been running. The idea is to go out on the land in a group of around 10-15 people, whatever is the best sized group, and experience the landscape and the water. For the long term, for the next 30 years going out every few years to do something like this, we are thinking every 2-3 years for the long term to go out and observe that landscape.

Skye: I used to work for community-based water quality monitoring program with GNWT. There are programs out there that exist like this, and I do not think we need to create a whole new program, we could be supporting these other programs and flying them to Diavik and let them do their monitoring there.

Gord: it's a good example, take another program that already exists and ask it to be applied to the Diavik site. That's pretty much what we are doing. You are right and that is what we are doing. But how do you pick? Do we pick a number of different programs from a number of different perspectives? That's the conversation we want to have with everyone and what to do.

Barbara: Excuse me, Skye just mentioned that there is a monitoring program that is happening. We know the government of Nunavut does that already. They have a really good program in Kugluktuk they monitor the caribou through the air, I think they do it every year. They fly and do

864 arial surveys to monitor areas, especially the calving grounds, it would be good to keep in touch
865 with someone already doing it. There are a lot of programs out there that are worried about
866 Bathurst caribou, dolphin caribou and a couple of herds around Kugluktuk and they are
867 watching other caribou even in the west and it would be nice to get in touch with these people
868 that monitor them and ask if you can connect with them. Thank you.
869

870 **Gord:** We do connect with these people who do the herd level monitoring. What we need for
871 Diavik is a very small, and at the Diavik size, to understand do we need to put boulders on the
872 mine site, not the whole migration of the herd. Obviously, we need to connect the herd with what
873 goes on, on the island. What we are talking about is a program to get all of you out to see how it
874 is working on that very small part of the landscape.
875

876 **Lutsel K'e Elder:** I know there is all kinds of courses going on in our community. The arctic
877 response that we have, and the people have went through those courses. We try to train our
878 people so that we work really hard to see if they can go into the mines, so we try to train them.
879 Because I sit on Gahcho Kué committee we always try to look for money for training and I know
880 that we have lots of TK knowledge in our community that can monitor Wolverine, Musko, x,
881 Caribou. It can be other things, it doesn't have to be wolverine or caribou, it can be fish and
882 birds. There are all kinds of animals that live on the land that we have to monitor and it can't be
883 one it has to be all. Even human. We all care for our land, I think that is why we are all sitting
884 here giving you our Traditional Knowledge and to leave the mine healthier and keep watching it
885 so we don't destroy anything and move forward, if we do not take care of things, nothing will go
886 right, maybe it will be unhealthy water in our lakes, I do know that the water is darker there
887 because it has been recycled so many times at how long the mine has been there. You go
888 anywhere else, you can see the bottom of the lake. It's not like that in Lac de Gras.
889

890 Let's not try to do one thing at a time, try to do two things, if we get to the mine site. I know
891 every two or three years we go and do fish tasting. That is too long. For me anyways because
892 climate change, we do not know how the fish health is. 2-3 years is a long time. I go to Nonacho
893 Lake with my mom, and my son, and brother, and I really have to watch the ice now because it
894 is different. Maybe it will be like that everywhere else. Things are moving things are different.
895 Even one year coming from Lutsel K'e to Yellowknife, the way to devils channel the water was
896 like chocolate – we could not drink it. All of the plants that grow by the shoreline, they all have
897 their own things in plants and if it goes in the water the fish will get sick on it. Me and my son
898 taught each other. If your water gets high, all the nutrients in the plants the fish eats it and it's
899 not good for fish. That is how I was taught by my elder and I carry it today. Not only my elder,
900 my mom and my dad. They are no longer with me, but I still carry it. I give it to my son and my
901 son gives it to his kids or my daughter and it goes on and on and on. If you don't teach your kids
902 like that, it's time to teach them. And we need to teach our young people that they need to be
903 going to the mine site of what we talk about today. I think we should take more of our elders and
904 youth to the mine and teach them and move forward. If we try to do something different then we
905 should not do like 2-3 years, I think like 7-10 days. We were at the fish camp time went so fast. I
906 had to leave early because I lost one of my family in the community. I did not plan on it but that's
907 what it is. 7 days is too short its just we set a camp and we gotta do this. It depends on the
908 weather too. We were lucky last week that the weather was good to us. Maybe next year it'll be
909 different. The longer I am going to stay the happier I am and the more I am going to learn.
910 Mahsi Cho.
911

912 **Gord:** That is the idea that we are going to work with Peter and the team on how you would like
913 to see a monitoring program that is complimentary of the science programs, that we are already
914 planning, that would get elders and youth on the land and evaluate the landscape.

Barbara: I would like to add to Łutsel K'e Elder's comment that these young people are really important to us. We have youth that are working on the planes because they are asked by the monitoring team that they include youth in the aerial flights and it is a good thing because they will learn, especially during calving season they will learn what the elders are looking out for. There are the elders and the monitoring team and they always make sure that they include an elder and a youth in these aerial surveys.

Gord: That is a good suggestion. Any questions on what we are trying to achieve? Is this something people would be willing to help us with?

Peter: Let's take a 10-minute break and then come back and have a discussion on what you would like to see on a TK monitoring approach. We have already had some suggestions: fish camps, Indigenous monitors such as 15 people out over 15-30 years and using existing programs but we will go around and see if there are some more suggestions.

Peter: Ok, we should be able to start again. We had one of the panel participants move online and he has sent Myra a couple of comments. We are going to look at [Métis Elder]'s comments. [Métis Elder] is from the North Slave Métis.

Myra: I will read them but [Métis Elder], come online anytime with your face on camera if you'd like.

"It's not just about the caribou, all wildlife should be monitored, mice, foxes, rabbits, wolves. If you watch the documentary about re-introducing wolves to Yellowstone National Park and how it impacted the ecosystem."

Myra: Métis Elder if you want to speak feel free and we will figure out how to share your voice. He says he'll be here bright and early tomorrow.

Peter: We wanted to make sure we are able to include that. So just as a bit of a review there were a couple of other comments. Fish camps on site, fall, spring, summer, winter, different times of the season, using Indigenous monitors in the monitoring, 10-15 people over the next 30 years 1-2 times per year, we didn't discuss having elders or youth, having some input on that would be good. Using existing monitoring programs to use at Diavik, if there are already good monitoring programs in the communities to use for that, that would be a good way to go. And then as has been said all wildlife, fish, and water should be monitored.

Barbara: I just wanted to add the wolves in our area, they have been watching them and they think they are overpopulating, and they are killing off the caribou. That is why they are dwindling. It'd just to help the caribou number go up again in our area. Now we have quotas, we never had quotas before, we have number of caribou we can get a year. There are some caribou we can hunt just freely, dolphin, union, I forget the other herd. They have to be monitored each year and they have a quota for them. I just wanted to say that there is caribou that are being watched and wolves are, they pay for each head.

Peter: They will pay money for the wolves that are harvested.

Barbara: Yeah, they have that up north right now so the numbers of the, because they were not hunting them as much before and there are a lot of young hunters going out now and they know they have to help keep the caribou herd, so they can have better numbers.

Peter: Now we want to go around and see if there are other suggestions for the TK monitoring approach. Things you would like to see implemented by Diavik in order to make the TK monitoring a better program so that it will complement the scientific monitoring program that will continue with some of those monitors on site and it will add to that monitoring based on the Traditional Knowledge that everyone around the table has and whatever you think will be beneficial to the site.

Lutsel K'e Elder: For our TK monitoring in Lutsel K'e, I don't know when this started, it's called the Ni Hadi Xa, the Watchers of the Land. Now that we have Thaidene Nënë Park, in our parks and way before the parks I worked for the Ni Hadi Xa, the Watchers of the Land, and the job was only in the summer. Every summer we test our water. There is a big, long tube with ten tubes we put it in the water with a buoy on top right by our community and we cross to wild bird bay and we drop off one and then we drop off one after Plummers then right by where, in McCog Bay, it's close to where Dave Olsen is, there is rivers coming down to our lake and we put one in Lockhart River. And we leave it there July, August, September. We pick it up in September and we check our water. We also do fish sampling there, and it is every year. When we shoot a moose or something we check on it. The only time we saw a moose that had a hole in its stomach, it must have fought with other animals, I'm not sure. It was not healthy, so we shot it and we burned it so the disease does not go to other animals. Teach them about plants, I work with the young people so I teach them about plants, which plants are healthy for medicine because a long time ago our ancestors only used medicine from the land and we see if the plant is healthier and stuff like that. Teach them about spiritual place, teach them where thin ice is, how you have respect for our lake when we travel, try not to make noise. That is how we teach our young people. The Ni Hadi Xa has a job all year because we have Thaidene Nënë. There is another program in our community on Richard Lake that is called Ni Hadi Xa that we go to watch the land. That's where Herman Catholic and Tyler Enzo work. And they walk because they do not a quad, all they do is walk in the summertime or fall time. And sometimes they can have boats if they want to travel around the lake and put nets in the water to check the fish. In the winter time they go by skidoo to see if there is anything that doesn't look right to them. And those jobs are there all year round. To me, at Diavik it's hard when you see every two to three years, it's a long time. The mine is going to be closing in 2025, that is too soon we want to have our monitors go there very often.

Peter: How often?

Lutsel K'e Elder: Maybe every year or 4 times in a year. We have lots of monitors in our community. We also have teaching and Arctic Response at home too where there is all kinds of course for people and I think everyone in my community in the middle age knows how to monitor and I think this is a good idea that we have this at Diavik. Because at closure, I just don't want to see every 2-3 years. At home when we do our fish its every summer and we fish every day. Now that the fish I saw last year is unhealthy I think we should go check and not leave it. I wish Nancy was here because she would be saying something on behalf of the fish and she wanted to see if we can do something in the Winter time and put nets under the lake. So we can see what's happening. With that, Marsi Cho.

Sierra: No comment.

Albert: Mahsi. I just want to say a few things, but I think there is a lot of things because I am an Elder, I am concerned about the water and the fish. I went there are a number of times before the mine was there. You are talking about reclaiming the land it is good if you go with TK and

scientific, that is very good if that is what I am hearing now that that is going to happen. Sometimes there is elders we all go there at one time or the other and then the most important issue I was going to say is that we need to teach or youth too. There is too different things right now, we have the scientific and TK and it is both different so if I go on the land and I take one white person with me the way I work they cannot do anything because they don't know what they are going to do they might just look at me. When I was ten years old I started going on the land on my own trap like so i know the ways of the animal. I see moose tracks and I know where they are going and I know where they are going to be.

Mostly I want the youth to go with us, and I am very happy we have a few youth here. This is the way we pass our Traditional Knowledge onto the youth. When you are not used to one another's traditional way of living and when you look at it scientific it is going to be different if we had to tell you what we want and so everything we learn we learn from one another.

Now that the land that we are talking about we are trying to better things the way it should be and for the closure of the mine. So, what is done is done but you can reclaim the land, the water and everything but it I going to be really hard to do it. We can learn from you in scientific way and you can learn from us in our culture to. If we help one another we will both succeed.

I have been listening about what happens to the land, the water the animals [inaudible] I have been fishing all over, some lakes are good, and some lakes are no good. Some have defects, some fishes in some inland lakes and some of them are not like that. Last year when I went to the mine, we use to have fish tasting and the fish was good and we use to cook it and eat it. Now we look at one other. So, the way I think about right now, I have been listening to what has been going on with the land, the fish, the water and the animals and I know I have been fishing all over, but I know that the fish aren't going to be like the Great Slave Lake that we live on. Some lakes are different, and the fish are different. But last year when I went to the mine, we had fish tasting and the fish was good and we ate it. And now there is a lot of Elders, we look at one another, and we cook it as natural as we can. And now I have not been there for a while but when I went there the fish are starting to taste different. When you boil a fish it has a natural taste to it. You could barbeque is outside. So, when you taste fish, it tastes different if you know it. Now when I went there last year again and we had nets in the water and we were going to taste the fish, but the fish were not edible, there were lots of bugs in the stomach. They don't eat nothing. They had only water and bugs in their stomach. So even there, there is a difference. And we could learn from one another. So, at the end of the day everybody will agree on what we want, and we listen to the scientific part and combine it. This is the way we call working together and we learn from one another also. There is a lot of animals on the land where the mine is, there is a lot of changes to the land.

This is what I mean when to us we go on the land and make fire and stay on land and the later and the next time I come back the land is clean and when a non-native stayed in the area you could see it is all different so now a days, we see a lot of that on our land. We love to keep our land as pristine as it could be for our future generation and our waters. We want the fish to be good. If there is a mine there, you see what happened to the fish at the beginning and no it is not good. We cut it and some had cysts on them. If something is eating good food the fish is healthy, but I am pretty sure the fish on that lake aren't healthy anymore. And the nets that we set close to the mine site and the fish were just lots. The water was kind warm, so I think the fish go to that warm water. There is stuff that goes in the water that maybe they are eat, these little insects too. You don't know. But even after the closure of the mine we have to keep monitoring that area, and the fish so there is going to be other mines coming up in our area, so we know what we are talking about and what we want.

1068
1069 It is good to work with scientific and TK both combined. There is a lot of things that Dene are
1070 always concerned about. You told us a lot of stuff and we listened to what you are doing and
1071 how you did it, that is good, and this is information that we need. But all that water that you
1072 pumped out and the way you talk about it, everything is so good the way you are doing things.
1073 But we see the difference though and I like to talk about things that I don't like to look on paper
1074 because I don't know how to read. On paper it looks good. But on the right here you have the
1075 place where you put all the water, that rock fill cover, I have seen some places where grass was
1076 starting to grow on that thing. So maybe we can learn from one another. I have my TK and my
1077 culture but sometimes I do not understand the scientific so I would like to be especially the
1078 water because the water is not good, nothing is going to live without water. So, I am happy to be
1079 here and talk sometimes and sometimes we have to learn from one another, so tomorrow is our
1080 last day and for today I think I said what I have to say.

1081
1082 **Kelsey:** Maybe more TK camp locations instead of just one area. Maybe monitor the whole
1083 area around Diavik.

1084
1085 **Vikki:** It is very important to have youth included because when I went to the fish camp that was
1086 my first time and I have gained a lot of knowledge about the water, the fish, the vegetation. I
1087 have never been to a camping site where there is no raven, seagulls, and [inaudible] that was
1088 very strange because there were no birds chirping. Usually, I get woken up by birds. And when
1089 we went to set the nets, we usually don't check the inside of the fish they usually just check how
1090 healthy it is but when we went camping, I asked my parents can we cut it open to see what is
1091 inside and it was very healthy so I think that is why it is important to have youth there with the
1092 elders to gain more Traditional Knowledge

1093
1094 **Jack:** The first one is Diavik is wondering how to incorporate Traditional Knowledge into their
1095 closure plans and the TK sessions have been going on since the mine started when they have
1096 produced tons of reports sitting somewhere. I think Diavik should look into all of these reports
1097 put this together and work with their partners to come up with what was said in the past during
1098 those sessions. And put forward a document about what they are planning to do for their
1099 closure.

1100 Another one that I just received just before is dated April 6, 2022 and it is just being given out to
1101 the panel today. The panel hasn't had a chance to review it or digest it. That is an issue,
1102 contents of this letter is being discussed today, while this document has been available since
1103 April 6th. The panel should have had a chance to review the document before it was
1104 discussed. Similar to what I have just said about the summer 2021 verification meeting, when
1105 the TK summer camp of 2021. The verification of the report occurred that time in Yellowknife
1106 and the Kugluktuk team could not make it because of a flight change that we did not know about
1107 so when we went to do the zoom meeting like [redacted] mentioned was not very good for
1108 meetings.

1109
1110 Similar thing happened when documents were being given out just before the meeting or during
1111 the meeting and we believe no one had a chance to review them. The verification of those
1112 reports were not approved or done, a member of the Yellowknives Dene First Nation was not
1113 there to participate and therefore the reports were not approved.

1114 I hear that Diavik has hired a new facilitator, different facilitators that we had, I am not sure who
1115 will be doing the verification of these reports or if they will be done, I think we should be doing
1116 the verification with the old facilitators because they are who knew what was going on at the
1117 time.

The fourth one that is being discussed here by Elders like Albert and Peter and the rest. The fish during the camp of 2021, all the fish that were caught were all skinny, starving, and no food contents other than some insects and bugs. Only one had a fish in their stomach out of all of them. This tells me that there is no more food for the fish and they are starving. I believe this is due to the disposition that goes in the lake, all the dust flies into the air and lands in the lake, the whole lake. On a calm day you can see all of the dust, the whole area is white, and all of this dust is going to the lake. On a windy day it is clear because the dust is blowing away and it is a big difference, I believe the study of the lake water and lake bottom need to be done as over the years the operations of the mines have been going on for over 20 years so there is already lots of dust that has gone in the lake and settled in the lake so we need to know what is in there. Thank you.

Peter: Thanks Jack, there are some good points there and I caught a couple of the points about giving the info out before the meeting. Is there any recommendation on what the TK monitoring can do to further assess? Is there anything in addition to maybe the fish camps a couple times a year to implement the TK monitoring?

Jack: It should be done more often like someone else said. But I believe Diavik has stated that there may be 2 camp outings, that is good to hear if that is true. They are planning to do reports every two or three years, but I think it should be done annually.

Peter Sangris: For the Traditional Knowledge monitoring approach and the scientific monitoring it is completely different so if we are going to be doing the scientific way of doing things those scientist people that are going to work with us, they have to use simple language to talk to us. All of these scientific words we do not know what it means but if they use simple words, we can understand them. If the youth are coming with us, they need to know the scientific words. If they are taught the words and the meaning of it, I am sure they will catch on. So those of you that are used to doing scientific work at Diavik mine, it will be good for you to also try to get the youth to work with you so that they will understand all the meanings of the scientific word.

If we are going to be working together, we need to understand each other and if they understand both ways it is easier for them to do their work properly. They also have to learn how to fix the fish, how to cut it, what to look or. When we look at these fish that we caught last summer there were still food in their stomach so we noticed right away. How will the fish get healthy again in the water there? We never heard anyone say that the water could be treated so that the fish could grow or get better. You have to watch out for the mercury levels in the water too and the mercury levels in the fish as well you have to check for that too.

Some time when you have iron mine or any type of steel mine or mineral mine all those things that they use affects the animals and lands around that mine. If the animals know that these things are harming them they probably realize not to don't go near what is hurting them. The animals have a way of sensing things. The animals know what is harming them. I saw the fish with my own two eyes when I look and saw this lady cutting the fish it looked so pitiful, so malnourished. So, by the time we caught that fish it was pretty big, but when it was just a little fish starting out I wonder what it was eating to get that big but when it was big it was so skinny and no food in the stomach. Maybe there is something different in the water that you should be checking for? You think that the fish is going to get healthy again later on after the mine closed? That is a good question I am not sure the answer, it is a hard question to answer. I can't talk very long I am not feeling well.

Mary-Jane: I am going to say a few words that I noticed over the years in different parts of the North Arm especially where I grew up. It seems that there is no food for the fish to eat over there in that lake. When I was a young girl we lived at Trout Rock. Every day we used to catch lots of fish. now we go there and set nets and we noticed that the fish are getting thinner and thinner and skinnier. Everything is affecting our land now even the water. I think the water is getting bad because of the activity. Today when we set the net close to the shore and we catch fish and we cook the fish and eat it, it tastes like grass, like they are eating too much grass. When we make water to make tea we look at the tea and the water just looks dark. Everything is so different. Ever since I was a young girl, I have noticed how things have been on the land. Even to today I have noticed a lot of changes.

When I take my kids fishing and berry picking at white Beach Point, Enodah, Trout Rock, Boundary Creek. We get up early in the morning you, are sitting on a rock there and listening to the wind, the birds, the seagulls, all these birds you can hear them singing and making noise but lately when we go out and listen we do not hear no animals in the morning or in the day anymore. Now that those mines are open in the barren land it seems that the animals are avoiding their migration that is why we do not see the caribou coming to this area here. That is all I wanted to say.

Joe: We did ask all these questions and went through them; they talk about the dust. I think that is most of the first questions I will raise in our meeting with BHP, from there we went to Diavik about the same thing. The dust would fly all around and it will do harm to the ground, whatever the caribou feeds on would not be the same, that's that the Elders said, to begin with and somehow the elders knew about it, and they raised the question. And that was with BHP, no different from Diavik, they are the same.

When they blast rock, chemicals they use go in the water as the dust flies wherever the wind takes them. Goes in the lake and the elders who are negotiating and leading up to the hearing we went through and the meetings that we had, I can list them to you and say that this is what we all said in the past, but the elders said that because of the noise, and the area they live and feed on will change. That is what they said, everything we did is all documented on paper and on tape. It is all on tape, some of the meetings that we had it is on video and we do not want to lose all of the information. It is all recorded, we are lucky. It used to be in my office as Grand Chief. There are big cases, one Christmas I took 5 and looked at them. The elders that were in those tapes are long gone but their words are so powerful. From Rae there is an elder that walked all the way to Contwoyto Lake close to BHP and every year they follow the caribou. So, they know what they are talking about because they live it. When the mine came in all of that is going to change, the caribou route is going to change because of the noise and the food they ate. And that is what happened, I am not going to blame the mine, but that is what happened and now that we am here what do we do?

That is why at the beginning of this meeting I said we have to work with people, scientific people without Traditional Knowledge. There is going to be another mine similar to what we have in front of us. They are drilling close to snare lake right now and they are asking for the size of land, they want to make it double, the man power they have they want to double it and they will find something close to our community, the one in Rae could be closer. We use that land, that is where we go beaver hunting, that is where the ducks land in the fall time and that is where we use to go. I am thinking ahead, and this is an example I'm using. I keep thinking about when you talk, I listen. We have to help them, that is why the science comes in. Before the white man came in, we were out there making a living, people were never sick. There was a guy named Simon Football said the first time he saw white man clothes was when he was 18. People are

1220 never sick we don't have a doctor, people use to get to be close to 100 years, now why are the
1221 young people dying? He sits in my house and tells me stories. Something is wrong he says,
1222 something is changing. I am not blaming the mining company; we have to work with them and
1223 help them.

1224
1225 That water, we need to make it as clean as we can before it shuts down. If something goes
1226 wrong 10 years after they shut down, who is responsible for it after they are gone? Let's say
1227 something goes wrong. Global warming comes and all this begins to go in the water, who is
1228 responsible for it. We do not know yet. It is going to take a lot of money to clean it up because it
1229 goes to my neighbor there. Every animal and living creature used water. That may still happen,
1230 we do not know that is why we need to work with people like them to. This mine here, I have
1231 been there I have watched. No one goes there when the ice is there, only when it is warm That
1232 is what they said right off the bat. They said the landscape is going to change tremendously.
1233 That mountain wasn't there, it is there now. They know what mining is like because we had
1234 experience with mines that came to our land, they did what they want and left, that is why we as
1235 Tłıchǫ people who were like we are going to get involved with them.

1236
1237 How can we work with them to make sure they don't make a mess? What happens down the
1238 road? Who's land is it on? It is our land, it is going to feed us. If something goes wrong that is
1239 what is worrying. Global warming is coming, we don't know when it is going to come. As I say
1240 yesterday, all these islands are disappearing, and that is all I see.
1241 Slowly it is coming and how far is it going to go. If only we can work with them we can do a good
1242 job that is all I want, to help them and work with them. This is going to be an example.
1243 Everybody is going to be watching this. We aren't the only one, they will be watching.

1244
1245 The elder knew the dust will go in the water, the fish will not be the same. They knew about this,
1246 and they talked about it. On the barren land, things are different, very different. On one lake, you
1247 catch 10 fish, the next day it will go down and the third day you will not catch anything. That is
1248 the way on the barren land. Our elders they talk about it. It happened to us at Courageous Lake.
1249 We caught the first day, the second day. The elders say the fish out there are different than the
1250 ones we get on Great Slave Lake. Out there is different, very different, this is something I hear
1251 from the elders out there when I talk to them. Our government is going to work with it because
1252 we need to work with them otherwise, I don't see them going it alone. We have to have our
1253 voice in there even though at times they always ask why but we need to give input. This is not
1254 the only mine coming up and we have to work with them. I am just worried about the water
1255 mostly because every living create lives on water.

1256
1257 **Barbara:** I just wanted to add, we have to check vegetation too because he said a lot about the
1258 caribou eating this or that and we have to make sure that this is included in everything there.
1259 Dust is flying around and landing on the food that the animals eat, and I want to make sure that
1260 vegetation is also included in this monitoring.

1261
1262 **Peter:** Does anyone have a question or comment?

1263
1264 **Jack:** I was going to mention this earlier but this is information I would like to give because the
1265 Wek'eezhii Land and Water Board to work with the TK panel and incorporate TK into their water
1266 plans. I guess Diavik has to listen to the TK recommendations and include them in the closure
1267 plans.

1268
1269 **Peter:** Anything else? I think we are done for the day. Thank you everyone, see you in the
1270 morning.

1271
1272 **END OF DAY TWO**
1273

TK Panel Session #14: Day Three Transcription

Peter: Thank you everyone for all your hard work as we move forward with this today. Claire has passed out the information from yesterday. Your comments are highlighted so please feel free to look over them and let Claire know if there are any changes. We want to make sure that everything is recorded as accurately as possible. So, today's agenda is fairly simple, we are going to look at the past recommendations we made over the last couple of days on the processed kimberlite containment cover, on the north inlet, on the TK monitoring approach and then some general recommendations made not specific to those areas, and we'll make any changes on those. Hopefully Kelsey shows up and we can ask both Kelsey and Vicki to present those to Gord and Sean when they come back.

And then we have some other housekeeping items and a few other things to discuss and then we will wrap up the day and wish everyone a happy weekend. Before we do that, Myra has a video from some of the previous work at the fish camp that we thought people would enjoy seeing. We will play that and then get onto reviewing the microphone.

Myra: This is one of the fun videos. Too bad we don't have Nancy here.

VIDEO: NANCY'S GUIDE TO MAKING DRY FISH

Myra: I just wanted to let some of you that had not been to the camp, have a look at some of things we do at camp. The fish and the water observations are key to the camp. But it is also about having a community together and being out on the land. We had the opportunity to have videographers there, Artless, out there, this is just a fun video and there is still a documentary coming.

Peter: Myra will show one more, that will give a bit more time for Kelsey to get here.

VIDEO: KITCHEN KARAOKE

Peter: That looked like a lot of fun, that is way more interesting than being in a boardroom like this. Being out there catching fish and seeing the water. Hopefully in June we can do that again. Let's hope that all works out.

Myra: Just for clarity that is not what we will do in June. We will be at the mine site. That was the fish camp, we will do that again. That was the first time we were able to get together during the pandemic and everyone was really conscience of everyone staying healthy and safe. Thanks again to everyone that was able to come last summer

Lutsel K'e Elder: I want to make a recommendation that we don't go every three years, but we should go every two years because in 2025 the mine is going to be closed. And I keep hearing that Diavik has another three more years. Then we should go every two years so we can watch our fish. Three years is a long time and things change. The video they just played took me back and made me think because I lost my cousin that day and so she sang that song for me and people that came from Lutsel K'e. I was good but we didn't stay all the way through because we had to go home. How do you guys feel about changing it from Three years to two years? I want to put that recommendation out there before the end of the day. With that, Marsi Cho.

Peter: The last one was in 2021, so that would mean 2023 and 2025 before the final closing. Any other general comments before we review the recommendations?

52
53 **Albert:** Good morning, when we travel, and it is time for us to go home, I wish everybody safe
54 travel. So today I am here, and I am glad that I am here helping out for the future generations. I
55 am glad to look at that video because I am remember seeing that. Even though there was a
56 meeting it is good to have fun like that because it makes you feel good. I am happy to be here
57 today with you people. Even if you don't feel good about yourself, people need to make them a
58 little thing like this so they can forget their problems and get help from their Elders. Sometimes
59 the kids are too serious doing whatever they are doing they don't think of fun things. So, the
60 Elders used to joke around with us or tell us funny stories. Although they are Elder Elders, they
61 didn't think they were too old, they did what they had to do but it was for the benefit of the young
62 people. We can keep our culture that way when we are out of the land. The children are the
63 ones who will be looking after the land. And we will teach them like our Elders have taught us.
64 They will keep the land. Now there is a pandemic here, but we try our best. And when we go out
65 to other communities for meetings, we are really happy to see our friends and we greet them
66 just like our brothers or sisters. So on the year 2025, it is going to be a closure of the mine. So,
67 two years. Include more youth instead of just one or two. In a way, when we are out there with
68 the youth, we are training them too. And they hear different stories other than what their family
69 tells them, so you learn from all different people. Or maybe even every year until 2025. A year is
70 not a long time. There might be something wrong with the water or the fish. And all the animals
71 that are on the land, so we are here to help one another to do the best with our knowledge to
72 have good closure of the mine. We all use that land from Yellowknife back home, so when you
73 do something, you have to do the best with your knowledge to reclaim the land to look nice like
74 the lord had created for us. And our children to, we have to do this stuff to set the example for
75 the youth as Elders. So sometimes if something goes wrong and water and the fish and the land
76 is all destroyed, who are we going to turn to fix it for us? What I think today, Łutsel K'e Elder
77 suggested ever two years but that is not very long so we need to go there every year. This is for
78 our future, for the lives of the Dene people and our animals. Today is going to be our last day,
79 the comments that we are going to give, so we all have to think and say way we should be
80 doing for the benefit of the Dene people and the Tłıchq people who us that land. We need to ask
81 each other what to do to make the land as good as it can be. When we work together, we
82 always do a good job and that is how the Elders have taught us. We have to have a lot of
83 patience with one another and give good examples. I am glad to be here this morning. I am still
84 hungry so I am going to have something to eat. Marsi Cho.

85
86 **Joe:** This might be a recommendation. I am thinking hard about where the caribou used to go, it
87 is kind of far away from the mine. I'm thinking about boots on the ground. I'm thinking of BHP and
88 Diavik. The Elders were saying that one day the migration trails were changed so these Elders
89 were looking at where the caribou migration trail was going towards there and coming down the
90 other way. We look at what it used to be like, and because of the mine got in way and the
91 migration trail changed. So, what the Tłıchq government decided to do what put some people
92 out there some of these big lakes. One area in Courageous Lake and put camps all over o the
93 lake. They are out there and one time they went to Contwoyto Lake and they stayed right in the
94 middle and as the caribou crossed they watch and what the wolf does as the animals come.
95 They made a movie out of it and they watch and monitor the caribou as they go through. The
96 migration trail changed a little bit and its going to continue to change and the other thing is, I
97 want Diavik to fund this program, It is going to help the caribou, the people, and the company.
98 They are still working at it and they will be out this summer. Our neighbors can learn from this,
99 they can watch it and learn. Its going to benefit all of us, the caribou and ENR too. They are
100 saying that wolves are killing too many caribou. When the caribou are coming the wolves are
101 there. The wolves take caribou especially the young ones and injured ones. That is something I
102 wanted to raise, I am going to be going pretty soon. From Rae we took one dog team and hit

Snare Lake and hit Diavik and on to BHP. We just wanted to follow the trails of our ancestors, how did they do it? Even though they did not have gas stoves and candles. In those days, our people had nothing. I don't know how they did it but they did it. That's where the mine is right now. We made that trip and now we have all kinds of stuff we can use, and we got lost sometimes. We go to Diavik and end up in McKay Lake. It was very difficult, but they managed to, they had been there so many times. Looked at the land and the mountains and even with all the technology we had we still got lost. It's something for you to know that we made a trip with a dog team and five skidoo and made it all the way back to Rae. The dogs were tired, and we take them out of the harness, and they just follow us. We brought the dogs into the basement, there were too many wolves. But the dogs got loose. There are pictures out there of the trip we made. Before I go, this is a model we have in front of us. If we do a good job this will carry us to the next project. We don't know when, we don't know where. But when that happens as Elders we might not be around. But everything we do as Tłıchǫ people is recorded, and on TV. Our young people can watch me talk even after we are gone. We are collecting information like that for our young people who are going to follow us. One day we might not be around, but our voice will. That is why we are collecting all this information. And I think this Diavik that we are talking about the Tłıchǫ people went over and over and over. A lot of our people, Lou Rizo, and Joseph from Wekweètì has been working on this for many, many years. He's working now with the Boots on the Ground. He's seen enough to ask what can we do to protect the caribou. We know where the caribou goes. That information is very important. I talked to the staff this morning, and this isn't the last meeting. I'm hearing we should visit the site as much as we could. We have this global warming that is hanging over our heads. We don't know what that will bring but it is not going to be good. I seen the island disappear. I don't know what that means but its there. I just wanted to say that and ask Diavik to support the Boots on the Ground program which can be used by Diavik. Whatever we do we can carry to the next project if it ever comes. That's the way we look at but they are still going to be out there. They are always asking Tłıchǫ people, can we go out there and we say yes. Thank you.

Peter: Mahsi Joe. Let's look at the recommendations. We will also discuss next steps later this afternoon for the next meeting of the panel and other events that might be coming up

REVIEW OF RECOMMENDATIONS

Peter: We added one yesterday on the PKC, the panel recommends Diavik place large boulders on the processed kimberlite to keep the animals from going through it. The TK panel recommends Diavik monitor the freezing of the processed kimberlite through the use of thermistors. TK panel recommends Diavik continue to monitor the processed kimberlite containment cover even after the mine closure to make sure it is not attracting animals or leaking into the surrounding waterways. The panel will have further recommendations when they are there in June and can see it in person. Anything change or add to the PKC and that area?

Ok, seeing no changes to that. On the north inlet closure, the TK panel recommends Diavik present in June session some examples of similar exercises so the panel can see what was done in other places. The TK panel recommends testing the North inlet for fish to see if there are any fish in that area. Test the north inlet water quality and periodically as the mine is slowly closed. Further recommendations will come in June when the TK Panel can see it in person. Anything we need to add or change on those recommendations?

TK Monitoring. Monitoring may not be the right word; it might be observations or visiting the sight. The idea is to get the youth and Elders to the site to observe how things are being closed

and back to nature. The panel recommends monitoring for more than 10 years, potentially up to 30 years. The panel recommends 10-15 people out on the land, over 30 years, one to two times per year to monitor the site after closure. The panel recommends hosts TK camps and fish camps at different places and seasons rather than at just one location. Was the intent many different places around Diavik or further out from Diavik to get a look at where things are at around the lake?

Lutsel K'e Elder: Around Lac de Gras, because there is a river that goes to Coppermine and there are creeks. We wanted to go to this other river. And we wanted to put nets in the water in different places, but it didn't happen. Not just around the Diavik site, we want to monitor everything.

Peter: And Barbara had said about the outlet going down the Coppermine. We'll make sure it's bigger than just the Diavik site. The panel recommends using simple language as well as scientific language when conducts TK monitoring programs. This is so Elders can understand, and youth can learn the scientific terms. The panel recommends inviting pre-existing community-based monitoring programs, such as Ni Hadi Xa, as part of the traditional monitoring program instead of inventing a new program. This can occur every year, potentially every season. This was to look at other programs as good examples. The panel recommends incorporating youth and Elders into the TK monitoring program in order to pass information including information about the use of plants as medicine. The panel recommends monitoring all animals after closure. The panel recommends monitoring dust and vegetation as part of the Tk monitoring program. The panel recommends Diavik look at all the TK panel session notes and recommendations and use those as guidance for a document summarizing what will be done for closure and the TK monitoring program. The panel recommends hiring Indigenous people who will work two weeks on two weeks off as environmental monitors. Any changes to those 5? That's everything on the TK monitoring.

Skye: I think Barb was asking about doing monitoring up the Coppermine River not just at the mouth but all the way up the river. Nets and water sampling?

Barbara: I just want the river to be tested for the water quality at the outage of the Diavik and fish. They said they haven't tested fish. So, if they could set nets where it connects to the Coppermine River. To test for fish.

Peter: Claire has just added that in to test the Coppermine River for testing and monitoring also over that time period. Any other changes or thoughts on the monitoring program? Its about getting the Elders and youth out to the site to see for themselves the changes that are occurring.

Jack: For number eight, the TK panel recommends monitoring dust and vegetation, should be expanded to test that water in the lake and bottom of the lake for dust.

Peter: That is in actual Lac de Gras. Not just north inlet. Any other changes or thoughts on the TK program?

Albert: We said we were going to monitor everything around that area. There is a lot of things that we should monitor. We can't look at just one specific thing. The BHP and mines are close together so if we are going to monitor around that area and there are berries that grow on that land and the wildlife, birds and even those ground squirrels that eat those berries and there are a lot of animals that live on these berries. And even geese. And all that vegetation, so since we

are going to look at everything we might as well look at all the berries and see if there is any contamination because the berries will show and also the vegetation around that. Take a sample of the vegetation and look at it in a scientific way.

Vikki: The monitoring part, all that money that goes into community programming with the closure, can they set up a fund or a foundation or basically have that money that communities can access or continue to access. I think that communication is a big part of the meetings within the communities that around Diavik.

Peter: If we go to the last general comments, we can add that in. These are recommendations that came out but didn't refer to the PKC, north inlet or TK monitoring. We can add that in as part of the general comments. Diavik continue to look at community-based program and provide communications so the communities know what's going on. These are comments that came out but didn't refer to one of the specific topics. Add number three, and number four, and that is that the TP panel recommends that the water treatment plant be the last building allowed to close, just because it can be continues and TK panel provide information prior to the meeting to allow for timely review. And that was Jack's comment about that it would be good to get the information ahead of time. Anything else on general recommendations?

Barbara: I think before you come out to a community, while you guys were there, just recently, I went to a meeting and Jack and Nancy were there. There was a crew there, a monitoring crew and they wanted to meet the community, but we only found out they would be there from date to whatever day why not have that information ahead of time? So, people in the community can go to look at it? Look at what is being presented at the meeting and then people will go to these meetings. They might have nothing to say but they might have lots to say. Even though it's not really relevant, it's important to us.

Peter: Maybe we can add to that bit about communication. That to make sure communities are contacted in advance and provided information. So, people can attend and be more engaged. We will take a break and Gord and Sean will be back and we can present the recommendations to them.

BREAK.

Peter: OK, I think we're ready to come back. Ready to come back and Gord and Sean have both come in, we made we made many of the changes that you suggested after reviewing the recommendations. So, we'll be able to present the recommendations with changes, and both Vicki and Kelsey have agreed to present them to the Gord and Sean. So, if you guys want to come on up and then if you want to put up the revised recommendations. So, we'll present the recommendations, and then if there's any discussion from the panel that you want to put additional comments through to Gord or Sean, we'll have the time to do that. And then after the recommendations, Sean has brought some in for our presentation on the vegetation monitoring, which was requested from yesterday. But the first and the priority is the presenting of the actual recommendations. And so, we'll do that and then we'll go from there.

Vikki: So, the recommendations from the process can contain containment cover, the first one was the Tk panel recommends Diavik placed large boulders on the process kimberlite to keep the animals from going through it. the second one. The TK panel recommends Diavik monitor the freezing of the process kimberlite containment cover through the use of the thermistors. On the third one, the Tk panel recommends Diavik to continue to monitor the frozen process

255 kimberlite cover even after mine closure, to ensure that that it is not attracting animals and not
256 leaking into surrounding waterways. The fourth one. The panel will further will have further
257 recommendations in June, when the PKC cover can be viewed in person.

258 **Kelsey:** Sorry. So, of the recommendations in the closure, the TK panel recommends Diavik
259 presence in June session regarding some examples of familiar closure exercises that occurred
260 at other mines. The second one, the TK panel, recommends testing the North Inlet for fish
261 before closure. The third, the TK panel, recommends testing the North Inlet water quality before
262 reconnecting it, as well as testing it periodically as the mine is slowly closed before it. The panel
263 will have further recommendations in June, when the North Inlet can be viewed in person.

264 **Vikki:** The recommendations for the TK monitoring program, the tick, the TK panel recommends
265 monitoring occur that occurs for longer than 10 years or potentially up to 30 years. The TK panel
266 recommends bringing up 10 to 15 people out on the land that over for the next 30 years want to
267 do one or two times per year to monitor the site after closure. The TK panel recommends
268 hosting camps, TK camps and fish camps at various locations around Lac De Gras during
269 different locations, rather than just one at just one location. The TK panel recommends using
270 simple language as well as scientific language when conducting TK monitoring programs. This
271 is to ensure that Elders can understand, and youth can learn the scientific terms for different
272 parts of their environment. The TK panel recommends inviting pre-existing community-based
273 monitoring programs. Such as Ni Hadi Xa, to Diavik as part of the ticket monitoring program
274 rather than inventing a new monitoring program. This should occur every year, potentially every
275 season.

276 **Kelsey:** TK monitoring program, continue number six, the TK panel recommends incorporating
277 youth and Elders into the TK monitoring program to pass on information, including information
278 about the use of plants as medicine. The TK panel recommends monitoring all animals after
279 closure. The panel recommends monitoring the dust, vegetation, and berries around Diavik as
280 part of the TK monitoring program. The TK panel recommends testing the water and Lac de
281 Gras and the sediment at the bottom of the lake. The TK panel recommends Diavik look at all
282 the TK panel session notes and recommendations and use and use those as guidance for
283 documents summarizing what will be done for closure and the TK monitoring program.

284 **Vikki:** The TK panel recommends hiring Indigenous people who will work at Diavik for two
285 weeks and two weeks off as environmental monitors. TK panel recommends including testing of
286 water and fish in the Coppermine River.

287 **Kelsey:** Recommendations general. The first one is the panel recommends allowing the water
288 treatment plant to be the last building to close and running all remaining water use on site
289 through the plant. The second, the panel recommends providing participants with the
290 information prior to the meeting to ensure enough time for review. The panel recommends
291 hosting the fish camp every year or two years, rather than every three years. The TK panel
292 recommends Diavik fund community-based monitoring programs. The TK panel recommends
293 Diavik improve communication with communities about the timing of upcoming events or
294 community meetings and provide information ahead of time for review. Better communication
295 about where to find information about the closure is needed.

296 **Gord:** If we go back to the beginning and we can ask you some questions about the
297 recommendations, mostly so that mostly so that we understand them is kind of what I was
298 thinking. Bringing it back to the first one to maybe go through, then we'll go through them in
299 order. So, just this first one. So, this is this is the idea of putting boulders like its specific places
300 around the edge to help discourage or help block the caribou from coming onto the peaks.
301 That's what you mean versus boulders on that on the cover, like in the middle of it. Is that right?

302

303 **Barbara:** I remember one of the Elders saying this that they wanted this if you if you can't keep
304 the caribou out of the center, you know where the slurry is that you put rocks around the edge.

305 **Gord:** That's what it was. I meant that that's what I understood. That's what I understood as
306 well.

307 **Łutsel K'e Elder:** Gord, we said on the PKC, when you put the fabric or whatever, you're going
308 to put on the PKC that we want rocks all the way around it so that no animal can go on the PKC.

309
310 **Gord:** I didn't have anything else on this. So, this one about examples of closure for other
311 mines, is that generally about closure at other mines or something very specific to the North
312 Inlet, like somewhere where there is hydrocarbon contamination under a pond? I think I think we
313 can bring you some, some information on closure of other mines and how that's worked and the
314 best ones that are most similar to Diavik. But it might be hard to find something that's similar to
315 the North Inlet. So just wondering what we were, what was the panel thinking there?

316
317 **Łutsel K'e Elder:** It's Łutsel K'e Elder here. We are having a meeting just about Diavik. I think
318 we just want to see how things are in June that we could see with our own eyes. It's been like
319 2019. I think when COVID started that we'd never been to the mine site. So now your guys are
320 [inaudible]. The mines going to be closing. That's what I'm hearing, and we want to see with our
321 own eyes what you guys are been doing there. I mean, if we're going to be staying there, we
322 would ask questions of what we've seen. And I know that in any other mines, they did
323 something that's not similar to this, this mine, because they never clean up and they just left.
324 That's not what we're talking about. We want to see what Diavik is going to be doing and how it
325 is today. So, when we go there in June, we really want to see how things are there, you know,
326 and so we can move ahead

327
328 **Gord:** But is it specific to the north inlet or just generally about closure?
329

330 **Barbara:** I think I wanted to see if there were other mines that are closed or closing and that is
331 where you are getting your closure ideas. I just wanted to know if you were taking other ideas
332 from those mines and using it here. I want to hear what happened to those mines and see if
333 your ideas that come from those mines, did it work at that mine.

334
335 **Gord:** For any aspects? like filling the pits or covering the piles?
336

337 **Barbara:** I want to know if, like the slurry come out or did water come out of the sides or, you
338 know, that kind of thing. There's mines in the north, you know, and they've closed and, you
339 know, just want to know.

340
341 **Peter:** We can move that to the general recommendations.

342
343 **Gord:** That would be great. I think that is what confused me.
344

345 So, when you think about the when, when the Traditional Knowledge monitoring would start, so
346 we continue to operate until 2025, then we have about five years when we're tearing down the
347 buildings, doing all those closure activities and then all of then it's all, it's all finished. The
348 closure is finished. And then and then we start, then we continue to monitor. Do you think the
349 monitoring should start when we're finished all those closure activities and you're able to walk

on the mine site? Or should it start sooner? While the closure work is actually happening. Does that matter? Does the panel have thoughts on that, or is that too much detail for now?

Lutsel K'e Elder: It's not too much detail here. We want to see everything that's happening, like if you're know that the mine is closing, we still can look at our water, the fish and the buildings will be coming down and when we go back there, we'll see it that things are slowly disappearing and not just leave, not just say, OK, you guys here are your Traditional Knowledge, you can't go there right now because we're taking the buildings down. For me, it's a no no. I want to see everything that's happening for us, even though after it's close, we can walk on it, look at it. And then if we have maybe another 10 years, 20 years, we still want to see it. And I always say, it's not for me, it's for the young people, how it's going to be. You know, we have our, we have young people that would like to see, Oh yeah, it was like this before. Now it's like, this is it. Is it good for them? I mean, they come here to a meeting not to speak for myself, I speak for my community. I speak for the next generation and the generation after that. And it goes on and on and we can see climate changes. We can just not stop this. We still have to just go on and on. And I would like to see it like. Marsi Cho.

Gord: So maybe we could add to that first one, like starting as soon as possible. That's what I was trying to get to understand. I like this idea of being able to use pre-existing, so other programs. Science likes to do the same thing every year, like the same program all the time so that you get you can repeat things. What does the panel think about a program that might change the way it was done from one year to another year, depending on which program we were, we were using it. Did they see any problem with looking at looking at it from a number of different ways in different years instead of looking at it the same way every year?

Lutsel K'e Elder: Because we have fish camp or camp out there, you know, one year we can watch our fish. Then it'll be like caribou, our plants. That's why I said four seasons of the year, we can check on everything. But it doesn't seem it's going to be like that anyhow. Ni Hadi Xa goes there all year round and they watch everything. You know, if there's, they check that they put nets in the water, they do their own fish sampling and they look at plans. They look at maybe unhealthy caribou. If there's caribou they go, check it. Not only that, there's wolverine, grizzly bears, muskox, sik siks that live in a bear lands. I don't see ducks. It doesn't have to be. Maybe we can have, like three things in a year that we can try to monitor. It depends on how winter, spring, summer, fall. You know, we can check on those different things that are moving like geese and ducks. They leave in the fall time, they come back in the spring. We can monitor those things. But fish has to be all the time. Same with caribou moose. I know there's lots of moose that migrate to bear lands now, and there's muskox there all the time and there's grizzly bears. Who knows, we might see polar bears that will be moving to our site because of climate change. I mean, it is just better that we monitor all animals, plants, berries, everything. And that's why it's called Ni Hadi Xa means you watch everything out there and then we have another one at home where it says Ni Ha Ni Xa. Same thing there, too. They watch everything on the land. And I think that I, I was going to put in a recommendation saying the TK knowledge monitor program that taking the Ni Hadi Xa should be there because we are Ni Hadi Xa, we are the watchers of our land and that's what we speak for. That's a Traditional Knowledge and that clicked in my head when I was talking to Myra this morning and I, I wrote it down because we are the watchers of the land. But maybe that's what you need to put inside there. When we go out there, it's not the TK monitoring program. We watch everything. It's just like Joe said, we watch everything. We have footsteps all over the bear lands from our ancestors, you know, from

when they were there and told that it's not the same. I know that. And I think my uncle, knows that, too. So, I think it will be better if we just monitor everything. You know, maybe one day we can talk about something or two days and then we can talk about something else on our next meeting in Yellowknife. To bring up something, do you think we should talk about this because I have e-mails and I can send it back to you guys and say, because I always get something from John McKellar and Charlie every day and I see your emails every day. You ask me a question. I can give it to you. At home when I listen to anything, I write it down and it stays with me. It doesn't come out. This doesn't come out this one, because that's a good question. I heard today and for me, coming to this meeting, we are the ones that are watchers of our land, and we need to teach our young people that. So, the Ni Hadi Xa, and the Ni Hadi Xa should be just in there instead of saying monitoring program. That's the scientist the way we are the TK Ni Hadi Xa. with that Marsi Cho.

Gord: OK, I'm going to try the question again and I like I appreciate your answer because I understand what you're asking for there but go ahead. What I was going to, what I was trying to say is, is it? And it's not. I understand that we don't have the right name, and this is probably a much better name. But is it the same program year over year? Or do we have to pick one program and do the same program every year? We don't have to pick the same program. We could do a different program in different years. Is that, is that what people are thinking as well? Yeah. Go ahead, Jack.

Jack: Thank you. Well, for that number five, I think I think if Diavik used, different programs from different communities and regions who have their own monitoring programs that would be better there were two for each of their programs every year, really from all the monitoring programs and communities or different areas. I think we work better each year. We just usually work in one program all the time. Thank you.

Gord: Why do you think? Why do you think it'd be good to have different programs from different communities in different years, just if you could expand on that just a bit?

Jack: This is just due to the fact that there they have different views and how they do it and made better their observations or whatever were from different groups of communities that have programs, mentoring programs.

Peter: I think the other thing from the discussion that came out was not just a specific community program and using that but looking at maybe there's five or six programs that are currently being used and looking to see what might be best from five or six as we develop. And as this group develops the T.K monitoring. So, if there's some, some good aspects from the Tłjchq and from the Łutsel K'e, OK and from the KIA that there may be a combined approach that could be used, not just one program one year. Another program, another two years later.

Gord: But what you're saying is different than Jack was saying. Like one of, one of the things we were trying to do is to say, is there one program that takes the best out of all of these that we should then call the Diavik program? Or are they all different and they can each be applied at a different time to give the most perspective on what's on what's happening there, which is what I think Jack saying is that you can use a different you use a different. No, that's not what Jack said... Gord is not understanding.

445

446 **Jack:** What I was trying to say was that you could use each outreach programs from different
447 communities. Use them all and come up with whatever it is you're trying to do.

448

449 **Gord:** Thank you. OK. So it is that. Yeah, thanks.

450

451 **Peter:** That was the impression I got as we are going through it.

452

453 **Gord:** That's why I asked the question. And so I make sure I understand. Go ahead.

454

455 **Barbara:** I want to add to Łutsel K'e Elder' comments that as we monitor all the animals. We are
456 seeing the muskox near the treeline areas near the communities. They have never done that
457 before because they are Tundra animals. I just wanted to say those are animals you should be
458 watching. Muskox are animals you should be watching too.

459

460 **Skye:** Hi. Yeah, I'm going to contradict what I said yesterday a little bit. There is no perfect like
461 CBM program out there or guardian program. But what I was suggesting you do yesterday was
462 you help fund those programs so that they can become better and then they can then go to the
463 camp and help you monitor and develop your TKI monitoring program.

464

465 **Gord:** So, funding as in training or capacity building

466

467 **Skye:** Exactly.

468

469 **Gord:** So, this one on the Coppermine River, I just want to I understand what you're asking for,
470 but it presents a challenge for us that we have to do something with because it's not, it's not just
471 Diavik that has an influence on the copper mine river. So, we need to speak with ACDC, the
472 owners, the operators of a Ekati, because they also at that point, they're also contributing to
473 what's going into the Coppermine.

474

475 **Skye:** Yes, but someone needs to monitor it.

476

477 **Gord:** I understand what you are saying, it's our problem, not yours. I'm just letting you know
478 that's something we would have to do.

479

480 **Skye:** I will mention this to Ekati as well. We drink the water from the Coppermine River. You
481 monitor the mouth. I've talked to Sean about this, and he says you just monitor the mouth. But
482 we drink where the river touches the arctic ocean. We feel the effects of the mine there.

483 **Gord:** Understood. But we do monitor the Coppermine River. It's close to where we would be
484 able to see a change. We don't monitor fish. That's the that's the piece that's missing.

485 **Skye:** And that's what Barb was asking.

486 **Gord:** Absolutely. And all I'm saying is we have a piece of work to do, but before we could do
487 that.

488 **Skye:** I will mention this to Ekati as well.

Jack: The wording on the bottom one, the TK panel recommends that Diavik use the TK panel session notes and use those as guidance for a document summarizing what would be done at closure for a TK monitoring program. I think the wording guidance should be in there but more than that "incorporate" these recommendations should be included too.

Gord: What I hear from this is you have given us a lot of information over the years. We need to take those recommendations and bring those together in a report going forward. And how we have used those recommendations and why we haven't if we didn't use it.

Jack: Okay what I am trying to get at is. whatever we give solid recommendations, it should be incorporated not just as a guidance.

Gord: I can't say that we will be incorporating all of them. There may be ones we can't, or we disagree with. Our commitment to you was to tell you what ones we are and why we can't for the ones we don't use. You didn't like guidance, you wanted something stronger than guidance.

Vikki: I would like to know what the mine did differently as a result of consulting the TK. In a report but in more of an interactive way, like videos, stories, interactive mapping. And I think a lot of the times they just consult but give no idea of what they did differently. Like along a timeline of the mine from start to closing.

Gord: That is something we have been trying to look at is demonstrating how TK has been used in closure and back into operations. We do need to work on pulling that together, I agree.

Sean: Is this one hiring Indigenous people to work two and two as environment monitors, is this now? To do science monitoring?

Barbara: A monitor that can look at what everyone is doing in that department. If you have to hire 2,3,4,5 to work in each environment department, do it. It is so important that we look at the animals, the land and the water, everything that is out there that needs to be monitored. The vegetation. It's really important that someone Indigenous should be looking at this along with the scientist.

Lutsel K'e Elder: I know you guys hire Patty to do the monitoring for wolverines. Around this table we want to monitor everything. That's the whole different job. That's only for Wolverine around this table. We want to monitor everything. That's a whole different job. Whatever Patty does. We are trying to be looking for somebody to monitor everything around the mine not just I know. Sometimes you guys do monitor grizzly bears. You know other things. But we sit around this table as Traditional Knowledge. Ni Hadi Xa want to monitor everything because the mind is going to be closing. We can rotate people in our community and give people a job, maybe not only maybe two weeks from my community, maybe two weeks from different communities and rotate. It's a good idea. But next year I would like to see somebody from my community come back and say, "Oh yeah, [Lutsel K'e Elder], you and I went for the TK monitor". I think this that's just for this person. But he will update with us, whoever you that's going to be going to work with the committee because usually when we do things like that that we send out somebody to monitor caribou and they come back, they have a meeting with the wildlife. This is the Traditional Knowledge monitoring program. I think it's a really good idea that we should hire more people, and I think we should monitor or rotations different communities and just rotate and see how things are. You know, we all we all speak English, but we all have our own mother tongue. And when we talk in our language, our words are more powerful. I guess they're all like

that. And then if we come back and communicate, we'll see. There'll be something there that might be different. it's just like, if you wanted to see something different, this is what I need to see. It might work. It might not work but we could try. Why not spend money?

Sean: If you know people who want to do that definitely tell us.

Gord: About communications, is a website an appropriate way to communicate?

Barbara: Elders can't, unless they have someone familiar with the computer, not many Elders own a computer and can use a computer. So having some hard copies to read to them or show them. Our people can translate it for our Elders to look at. I know a family who used to live around Contwoyto Lake and probably around Lac de Gras before. They have descendants at home who are still around, and I would like to see them, like Bobby, I would like to see this information given in a hard copy and translated to our language. We have a translation team in Kugluktuk. They do work for the government, but they do work from home.

Gord: That is one of the things we struggle with is how many copies to send to each community without being wasteful.

Barbara: Just send them a website copy and they can print it like 10 at a time. As they need it, they would print it. That way we can save paper.

Gord: Can we rely on some of the youth for accessing the websites for some of the Elders?

Lutsel K'e Elder: You can use USB or something like that too.

Ryan: Go around the table to give everyone a chance to answer the questions.

Kelsey: Can you guys keep the air strip open for monitors in the future.

Gord: We are trying to make the same recommendation. We are asking the government if they can take it on as something to keep open forever as an emergency landing strip and keep long term monitoring access.

Peter: Going around the table now, any suggestions about recommendation five about communications. What the best way to communicate in the community?

Albert: I want to say I have another issue that I wanted to raise which I have forgotten because [the] airport, if it's still there and people could use it for emergency and then the right people go out on a land for monitoring. Maybe leave a couple of buildings and not tear down the one that's usable so that people could use it when they go out there to monitor the land, the water and stuff like that and even bring youth there to do studies on the land in the summer. So is this another thing that could help us in that in that way too. which is very good for me as this to be a lot of people that are actively monitoring in different areas and different communities. So, this is good. This will come in handy for us too. It's just a thought that I put that on a floor.

Vikki: About the upcoming meetings and informing. I think it is important to have the youth with me and we can go to the Elders. We live in small communities, and it is very hard to communicate over the phone. It would be good to have the youth go to the Elders house and handing over the documents to discuss it.

Skye: It almost seems like Diavik needs a part-time Diavik Community Liaison in each affected community. With closure coming up it almost seems like that is a necessary position.

Peter: Any other recommendations?

Peter Sangris: It's right that the young lady said that a lot of Elders don't read and write. It would be good to have the young person community to the Elders about what kind of work is going on and what will be going on. The person who is doing the interpreting should be a youth who understands their language and English that way they can have a one-on-one conversation with them.

I don't know if 30 years is a good number, it could go passed that because of how things are changing in the future with us. About the PKC, I think putting the big boulders with sharp edges there would be a good idea to prevent them climbing over it. Maybe you can put that steel fencing around after you put the big boulders there around the whole containment area. Grizzly's and wolves might tear through or go over it. So, if the caribou are going back in the area recalling their migration route, they may have to go around the containment area. The wolves or the grizzly could go after it. And that way even the Grizzly bears could be chasing the caribou in that area. If the rocks are too sharp, the caribou might kill itself on those. So, the steel fencing could go around the PKC to protect the caribou from hurting themselves along the edge.

Laura Jane: According to the pictures I have seen it looks good, it looks nice, but I have never been to those mines in my life. It looks like it would be good to have cloudberry and cranberry the area looks really good. But its you people that have to decide. I just can't do recommendations because I haven't been there in my life, but I think hearing what you have to say because all of the concerns come out.

I work in N'dilo at Kalemi School in N'dilo for 15 years. When we had the kids go out of the land with us and set rabbit snares and how to skin muskrat, catch fish. Then I taught some girls how to sew, to bead, I am retired now, and I stay home most of the time. But I still feel okay to go out sometimes. If I am asked to do some cultural things I say yes, I go help out. I want to teach the young kids how to do things, they remember it best when they are young. Even that young man there [Kelsey Martin], I remember him as a little kid going to school. I am 80 years old; my husband is still doing okay. We have been married for 52 years my husband and I and we are still doing ok health wise. We had 7 girls and 1 son. My son died of pneumonia. My girls are still working. Only one is living with us because she helps us with the house. I consider myself an Elder, but I don't think I could go out on the land. I feel good and I still like to come out and listen to meetings like this. But sometimes they ask me to come out and help the young people with any cultural events. And today there is a lot of bad influence such as alcohol and drugs available to young people; I wish they wouldn't do that too much. They have to learn for themselves and see the older people doing other things to get interested and show they youth by actions.

Gord: Thank you, and thank you to the panel. I appreciate all the recommendations and comments.

Jack: going back to #5. As Barb mentioned earlier there are interpreters in Kugluktuk and there are also independent ones who can help. You might want to look into that. Also, I am sure there are radio stations that people listen to in the community. That's another way.

Peter: Thanks Gord, thanks Sean. Let's do the presentation on vegetation before lunch. Also, before we break for lunch Myra wants to get a group photo. Let's take 5-10 minutes.

BREAK

Peter: Okay so the only thing we are going to cover in the text 15 minutes before lunch. Sean was asked to pull together an presentation on the vegetation monitoring, but before we do that [Łutsel K'e Elder] had something to share about the recommendations.

Łutsel K'e Elder: Being in Diavik workshops and meetings that we have lots of recommendations that we put and they only use some of it. Do you know the important ones on our recommendations that you never used that maybe it is useful that I want to use that part. Maybe on our next meeting you can show us that. The important ones. Also, last year we asked if we can have two interpreters instead of just one. When you are speaking, your jaw gets heavy, you are always thirsty, it is tiring. We need two interpreters. We have been saying that; I want to see two translators travel with me. With Gahcho Kue we always hire two people but with Diavik, we only see one person. It is tiring. I want to see that; with that, Marsi cho.

Peter: Mahsi [Łutsel K'e Elder] and I believe after lunch Myra will for sure address the first question and can address the other. And all the recommendations are important so we will get a report on those and when we are going to review those.

PRESENTATION - VEGETATION RESEARCH AND MONITORING

Barbara: Can we see what kind of results we are looking at for berries and lichen for caribou. Has the berry habitat changed? has the lichen habitat changed in those areas? I want to know what results you have gotten over the last 20 years since you started mining in the area. Just give us a quick explanation about those things. What has happened to the berries and lichen that were living there.

Sean: The main change we have seen is pretty close to the mines, within 1.5 kms. All the stations we sample there, we have seen a lot more dust there. There are different metals in the dust, but it is not so much that it is unsafe. But yeah, mostly we have seen dust and with that some of the density of vegetation has changed.

Barbara: A lot?

Sean: Not a lot, but it is noticeable.

Barbara: What about berries in the area, she was talking about cloudberry and how she used to go out and picked them. I just want to know about those things.

Sean: We haven't collected berries over the last 20 years, we did it last summer because it was a recommendation from the TK panel.

Łutsel K'e Elder: So now I know that the same questions I am going to be asking. How far does the dust fly, and you circle that thing but in meetings, you say no it doesn't fly far. But when the wind flies the dust goes all over the plane. Did you see dust at the fish camp? We have seen dust. We sat around the campfire outside, on a calm day we see the dust. Now I know that dust flies in the lake and the mining company will say, there is nothing wrong it is

okay. It is not okay for us. Look at our fish they are not healthy, look at their food, it is dying off in the water. For the way your science is and our Traditional Knowledge, whole different thing. Maybe we weren't working together good because if we were we would tell you how it is because we live off the land. They just come in to take diamonds off the land and not worry about everything else around it. But we live off of caribou, fish, everything around there. Even berries, plants, everything around there. The dust goes on it, and you said some of them are unhealthily. Maybe it lands on our berries and on our plants. Even on lichen that the caribou eats. I just want to say that so when I go home, I am going to visit with my uncle and I am going to say this is what I heard when I went to the meeting and he is going to explain to me that he sees that too. I have been repeating myself and keep saying climate change and they say everything is going to be okay. We as Dene, we know when things are changing, we watch everything. We notice that the snow is now powdery, it used to be rock hard. Now that the water is sky high because they opened the dam. Now that the water is so high the ice is thin. The ice is going to go fast this year. Maybe there will be less rain, more dry, with more forest fires. We all watch that; I was taught that when I travelled with Elders and my parents. And the dust flies far because in our community we don't have paved roads. We get dust, we put water down but you can see the dust in our community. Same with the mine site. Because they haul their diamonds to the process plant there is dust flying and we know it gets in the water. And they keep seeing it is sage.

If my fish was sick and that was the last thing on earth, I wouldn't eat it. Because I want to live longer. And the fish that we caught there we wanted to put it in the process plant and burn it so that no other animals could eat it because it wasn't healthy. Who knew if it had cancer or not, because fish do have cancer. Just like every other thing. You never know because we caught a fish at home that had a big thing on it, we sent it away and were told it had cancer on its head. Those are the questions I would like to get the results of. All the fish that have been sampled, I'd like to read it. So, I can tell my people. It wouldn't just be for Diavik, it would be for my community. If I found fish that were unhealthy, I would sent it out. Maybe it would be similar, I don't know.

I have never seen any unhealthy fish at home yet. They are all healthy, we will still eat fish. And the dust does fly far but they keep saying that there is nothing wrong. And they say there is a little bit of stuff in the dust from the explosions and the processing plant. You are really making me think, you are making me really think now, Sean, about where we are going to go next and how we are going to fix it. If we water our roads, because the roads dry fast when it is hot out, dust flies far. How can we do it better? I just wanted to say that. Marsi cho.

Sean: Thank you, and I think it is important to think about dust as we get to closure. We expect once we close and stop driving trucks, stop blasting, cover the PKC that most of the dust will stop. But we will have to monitor that, it will be an important thing to watch.

Barbara: You said you don't monitor berries or berry plant or the cloudberry plants. As a recommendation, I would suggest that you start, and for future mines. If you are going to use this mine as a model, look at berries and start monitoring. That is what you should do, you don't know if the berries died around the areas or if the plants died. We live off berries, we have four types in my area. We pick all those berries, and we freeze. I understand why you weren't monitoring berries in the start, it is kind of frustrating. Is there much dust there too? I wish we could see the dust collection in a picture.

Myra: I can pull up some pictures.

Sean: We collect dust from the snow. We take cores from the snow right from the surface to the ice or land and we have stations right at the mine up to about 8 kilometers away. Basically, we melt the snow and then we have the water with the dust in it and then we filter out the dust and then we weigh the filter to determine how much dust there was.

Myra: These pictures show some of the excursions that we did.

Jack: These pictures that are showing they are all pretty clear air. Seems like no dust in the air, probably because it all blows away in the wind. On calm days there is white dust in the air. That is because there is not only one mine in that area, they are all producing the same dust in the air. And then there is one in Lac de Sauvage, and so there are about four of them giving off dust for 20 years. It has to have an effect on that lake, where it is depositing all that dust on a calm dusty day you cannot see the buildings or anything on the Diavik site from the fish camp. On a clear day you can see everything. All that dust is being deposited in the lake and is having an effect on the lake and lake bottom. Thank you.

Barbara: The lichen, could you add more about the lichen that you've see in the area. Is it there still, and in the farther areas too?

Sean: For the lichen, it is similar to the vegetation, the changes we have seen have been in that very close ring around the mine. I can try to get some more data for you if you want. There is still lichen on all the rocks, it didn't go away.

Peter: I think getting on the site will be the most important thing. Thanks Sean.

LUNCH

Peter: This afternoon we just have some housekeeping items and Myra has some things to report back to the group and then we have some next steps about when we might be able to get to the site in June. And then we will do a roundtable and a closing prayer. Anything else anybody wants to make sure we talk about or address.

Barbara: Make sure we add the berries to the recommendations.

Peter: Yes, those have been added.

Myra: We will look at some pictures that Jack took and presented to EMAB of the dust. Do you want to look at these pictures and you can describe what you were talking about earlier in relation to dust?

Jack: *nods*

PRESENTATION OF PICTURES

Myra: There is primarily some housekeeping to go through. The first one is potentially adding additional community reps to the panel. So as reminder, especially for those of you who haven't been to the panel before. We have what we call Participant Agreements, but they are often known as IBAs with five communities. These were identified before the mine started. Łutsel K'e, Tłıchq, North Slave Métis Alliance, Yellowknives Dene First Nation, KIA. In recent years we have gone through an environment assessment with the MVIRB and there were some other

communities that were identified. The Deninu Kue, the Northwest Territory Métis Nation and the Fort Resolution Métis Government.

They have requested participation in this panel. We have EMAB here, Dylan as staff, which is the advisory board for Diavik, and it is part of their mandate to hear what the communities are saying and make sure that we are doing what we are supposed to be doing. I hate the word, but they are like the watchdog of Diavik, and the regulator also.

They were formed out of an environmental agreement that was started before the mine stuck. And your Indigenous communities were signatories to that environmental agreement. And that was how the TK Panel started and then EMAB asked Diavik to take on the TK Panels so they could hear from us directly. Back to the request. There are some other groups that want to join. So, if you could discuss the idea of including them in the TK Panel. If it is possible, could we invite them in June? Diavik is committed to engaging with them, but we need to know if we can invite them to this panel.

Łutsel K'e Elder: This committee or this panel that we do our Traditional Knowledge was only for Łutsel K'e Dene First Nation, Tłıchǫ, Yellowknives Dene First Nation, KIA, and Métis. Those are the only five people that are here NWT Métis and Fort Res Government Métis and Deninu Kue. This panel that we do our Traditional Knowledge was only for the five groups that are here. Now that we change our people who come in and sit on the board since Joanne and the rest of them aren't there, things change just like that. When I come here on behalf of Łutsel K'e Dene First Nation I have a leadership at home and a Chief at home. If they say okay, then I came back here and say okay to the people coming to join our TK monitoring program.

I can't just sit here and say okay they can join us, it doesn't work like that from my community. I have to bring it home and talk to my leadership. I cannot say yes to them joining us right now, I am sorry, but I can't. That is how it works in my community.

Peter: Maybe what we can do a formal letter to the individual groups to address that concern.

Albert: Good afternoon and thank everybody here for all our comments during the meeting to the group here. We are treaty Indians from our land. So, there is Treaty 8, Treaty 6, Treaty 11. I am just going to tell you a little story because as we live from Yellowknife, Łutsel K'e, Fort Resolution. We are all Treaty 8 members.

Sometimes we don't work well with the people and sometimes we help one another whenever we can. But nowadays we all go to the mines and that, Fort Resolution are included in our site visits. Then all the sudden they never showed up anymore. But us, we kept on going. But the treaty people from Yellowknives and KIA continued going to the meetings and help each other. The land that we are talking about is very important to all the people. And that is why we come to the meetings. We have to put our input into what we want on our land. In the past we all worked together and these Métis people. There were some Elders in the past who did not like the Métis people. Because they were our people, and they changed their lives to Métis people and I don't know why they did that but anyways and now they are claiming their dad's names and asking questions about the land to us. When we were young, we lived on the land and didn't see any Métis people. We knew some trappers from the south that came for a few years and then went back to the south but after that we haven't see any people. Now we have money on our land that we occupy for our animals and the well-being of our people.

We are always talking about the animals, and we survive by these animals. I have never seen a Métis come into our community and want to work with us. We can't make a big decision like this before we talk to our chief and our councillors. It is a hard decision to make on our own. We are only representatives, but we can't make a decision that should be made by the leadership. So, this is what I have to say, I am not going to say anything else. I am just concerned about the animals and the land. So, when I go back I will have to report to the leadership and we will hear on behalf of all the Łutsel K'e people not only us.

Kelsey: I would have to say the same thing.

Skye: It might be helpful to show a map of where the communities are in relation to Diavik because maybe the facilitators or Elders may not know where it.

Vikki: It is very undecided for me as what Skye said, let the Elders say their part. Also, I think that we could stick with the groups in the Impact Benefit Agreement.

Jack: We need to take this back to our leadership. I think the best course would be to write a letter to our leadership. These 5 TK panel members are all under the PA so I am not too sure whether legal stuff might come in.

Barbara: I just want to know why they want to come in now even though we all have been here since the beginning. It is like starting all over again. That is my own opinion. I will wait for KIA to say what they want to say, I think I will wait for them.

Peter Sangris: Where we are talking about the mine, it is closing pretty soon. It is going to be closing soon, so these recommendations were given to you. We already expressed our concerns, but we are just representing our community. I can't just make a decision without them knowing what is going on, in any kind of meeting that we go to. I am going to say no for now.

Laura Jane: For myself too, I don't really know too much about the other groups. Where they live and what they do. I have to really listen to what my community leaders say because I don't really know how we will work with them. So, my answer is no.

Peter: Thank you, the direction we are going to go is to send a letter to your leadership.

Myra: We will do that; we didn't expect an answer but appreciate the guidance. I just wanted to hear your thoughts. But the guidance I had heard is that we should be sending a letter to your leadership, your chiefs, your president. So, we will do that. Just so it is not a surprise, that is what we will be asking them. We are going to talk about the next steps, but there has been quite a bit of questions about the last session. As you know we had a session in August of last year and we had a verification session in December and normally with the verification session we would review the report together and watch a documentary of the session. Unfortunately, we weren't able to have all of the participants at that session so we couldn't finalize it. We do have all the participants now, and I don't mean today but we would like to do a final verification session with those who were at the TK Panel and the fish camp in 2021. And that is including the facilitators that were there at that time. And that would include the facilitators. I will work with your staff to find a time when we can get together to do that with hopefully all of the people that were there and hopefully the facilitators that were there.

Łutsel K'e Elder: The only people who were not there were Yellowknives Dene First Nation those are the people that did not make it to the meeting in December. That is why we did not

894 approve anything that happened at that meeting or watch the documentary. I know Jack, Nancy
895 and Vikki were not there because their plane was delayed because of the weather.
896 Right now, we should book for that meeting some other time before we go to June's meeting at
897 the mine site. If we are all together, we can approve the meeting. Because we had a really hard
898 time approving anything because the Yellowknives Dene First Nation wasn't there.
899

900 **Myra:** Thank you [Łutsel K'e Elder]. We are working really hard to have that happen, I don't
901 want you to think that has been forgotten. There is a draft report. We will bring everybody back
902 that was there over the summer. We have over 200 recommendations. This is session 14. Let's
903 say 210 recommendations. We want to go through that with you. But 200 is a big number. A lot
904 of them do say very similar things. We have heard putting boulders around the site numerous
905 times. So, we are incorporating that into the design.
906

907 **Peter:** Since there are that many, I think if we lump them into categories about what we have
908 done, what still needs to be done. Or as Gord said today that if we are not able to do something
909 then let the panel know that maybe it is outside the permitting or that somebody else is doing it.
910

911 **Barbara:** With all these recommendations can you put them down on paper and put "done, half-
912 done". But make sure they are on the paper so that we, who haven't been here from the
913 beginning, can see it. You can group them however you want but I want to see all the
914 recommendations, and the results. We'd like to see something like that.
915 As you go along update it and say what has been done. You will see how much work you have
916 done and how much still needs to be done.
917

918 **Myra:** We talked a little bit about communication this morning. You can find all the reports and
919 the long list of recommendations on the EMAB website, but I know not everybody can access
920 that information easily so if you think there is a way that we can share that better. But yes, it is
921 up to date to number 11 but a lot has happened over the years with the environmental
922 assessment processes, so we want to make sure that the information is up to date.
923 We appreciate that a lot has happened, and it is a little bit dated. So yes, we will group them by
924 theme and then share them back to you. I do have a few slides, but we can do it on our next
925 meeting if you'd like.
926

927 **Łutsel K'e Elder:** Can we do that at our next meeting? Because for me, it feels like our
928 recommendations is being put last. And the meeting where the Yellowknives Dene never came
929 has been in the back of my head since I left that meeting. We put in all our Traditional
930 Knowledge and some of them that Diavik used, and some didn't. I like the way you said
931 "incomplete", in Gahcho Kue committee meeting I do the same thing, if it is not completed, we
932 talk about it. Here it is an ongoing thing, we repeat ourselves. This is the last day. Before we go
933 to the mine, we should be talking about stuff like this. Make a copy of us or email us, if you send
934 an email to me or Laura Jane we can sit with Albert and Sarah and talk about it. And then when
935 we have our meetings at the mine site we can say, this is what we talked about. We will all have
936 different recommendations and then we can tell the group what we agree or disagree with. Try
937 to make things simple, not on the last day with a heavy load at 2 o'clock in the afternoon.
938

939 **Peter:** It will be a much longer discussion than the time we have on a Friday afternoon. Las
940 thing is next steps on the meeting in June, we did discuss the meeting in June, but we want to
941 discuss the next steps.
942

943 **Myra:** Everyone has different dates that work for them, but I will come up with the dates that
944 work for the most people. Making sure that we represent for all groups.

945
946 **Lutsel K'e Elder:** In the barren lands everything thaws out in July. Now we all have plans
947 because we have been in COVID since 2019, now we are free to do things. Like we get excited
948 to go somewhere. It is kind of hard, maybe you can ask everyone when they get home to see
949 what day works for them then communicate with them so that we can all say yes, this day is
950 good for us. I can't really tell you right now because I have meetings, I have other things to do.
951 So, when you let me know the date I can say yes I can make it but if I say no then it is not good
952 for me.

953
954 **Myra:** We normally talk about what the topic will be for the next session, but I think that is pretty
955 obvious. We are moving towards closure in 2025. We have had a lot of discussion about our
956 closure plan and how we are going to close different areas of the mine and a lot of you have
957 been listening in and participating on the Final Closure and Reclamation plan series that we do.
958 Those are more technical, but I appreciate that some of you come out to those.

959
960 At the end of this year, we do need to submit something to the water board. It is a huge body of
961 work, like 1000s of pages, but part of that will be a TK Program for closure. Because it hasn't
962 been done before for closure it is hard to define what that means or what that will look like. But
963 we are looking to you guys to help us to put something together to share at the FCRP session
964 and also back to the water board. And it is not the science program, there can be some science,
965 but it is really, what do communities want to see on the landscape at Diavik when we are gone.
966 That is the big question I'd like you all to leave with and think about before we get to the next
967 session. Because we will be talking a lot about that at the next session.

968
969 **Peter:** We will also have time to check out the things we talked about this week, such as seeing
970 what we have been talking about this week.

971
972 **Myra:** I was taking notes like crazy but if there are things specifically that you want to make sure
973 we see at site, tell your staff member, contact me or the facilitators. We want to make sure when
974 we are on site, we see everything that everyone wants to see.

975
976 **Peter:** The last thing we want to do is hear some closing comments. Were the three days
977 successful for you?

978
979 **Lutsel K'e Elder:** I'll make it short and sweet. When I go to meetings I constantly talk, I try to
980 give other people a chance. Don't be shy, I used to be nervous when I first went to meetings.
981 My palms were sweating I was nervous to say something right or wrong. Thanks to my dad, he
982 taught me not to be scared and not to be shy. I hate repeating myself because I have been
983 coming to these meetings for a long time. We repeat ourselves a lot. I write things down on my
984 phone and I look back at the pictures I have seen.

985
986 And when we ask questions to people from Diavik and we don't get the right response back we
987 take it to someone else who knows something. If we want to ask questions about the
988 environment or Gord that was there at the fish camp. He is not here; he was there with us. He
989 would have understood what I was talking about. Sean goes there every once in a while, I know
990 that. I always argue with Gord, he knows that. He is say "Oh yeah, [Lutsel K'e Elder] you are
991 going to say something" because he knows I can speak.

992
993 I am really happy to see KIA in our meeting today not in a zoom meeting. But I miss Nancy. I am
994 really happy all of you came and spoke up. If something bothers you just say it, doesn't matter if
995 it is right or wrong. Safe travel home. Marsi cho for coming.

996
997 **Albert:** Don't fall asleep you guys. Marsi for inviting me. I would like to thank you again. We are
998 doing some work here with a panel about the closure of the mine around the area and around
999 the lake here and the people who came in from KIA. shows hat we are really concerned about
1000 our land and our waters. And the mining company too, we have to help them to reclaim the land.
1001 Put a good closure on it so we don't have to work.

1002
1003 And the next 20 years, what went on our land which is good in a way. We ask a lot of questions.
1004 After the closure of the mine, you should just keep monitoring the land. I suggested that maybe
1005 you could leave some houses there for the monitoring people to go there. Or maybe take our
1006 youth on the land to show where the mine was and tell them what happened in that area. I think
1007 we will benefit from the cabins or the houses if you don't tear them down. So, the building there
1008 is a lot of people travelling even from Rae. They go there in the winter. And if there is lots of
1009 caribou, they will go out on the land to hunt the caribou. So if you leave some building standing
1010 up it would be useful for all kinds of reasons, even bring the youth. So, demolish everything but
1011 a few buildings. That is what I am asking for.

1012
1013 The very last thing is that there is no wood, so we use to prefer wood stoves. Even going
1014 hunting and your skidoo breaks down and you don't know where to go you know there is a
1015 house there and you can survive.

1016
1017 So today I will put this on the floor but in the future, I would like to hear something back from
1018 Diavik. So today is the last day. It is up to you guys to do whatever and fix it because it is a lot of
1019 work that the TK has put into it. We have never seen and Fort Resolution people or the Métis
1020 from the South Slave. We still have to help one another as best as we can for the benefit of our
1021 land, our waters, everything. It is not only for us. It is for our future generation too.
1022 We have to leave something that is good for our kids to survive on like our forefathers did for us.
1023 It is not going to be the same way as it was when I was a young person even after reclamation.
1024 We still try out best [inaudible].

1025
1026 This is why I am concerned about our land. So, when I start talking, I like to talk really long, so I
1027 want to close for now and thank you again for bringing us together and taking our thoughts and
1028 our words and our traditional way. We all come from different places, and I hope we all travel
1029 home safely. Our Elders used to tell us that and we are thankful for being here today and that
1030 God gave us another day to help.

1031
1032 **Vikki:** I just want to say thank you for the opportunity to be part of the Traditional Knowledge
1033 Panel. Sitting around with the Elders and listening to their concerns and stories of the land. It
1034 will hold a special place in my heart. I am very grateful that I got to be a part of this again.

1035
1036 **Jack:** Thank you for all the participants and all the people who work here to make this happen.
1037 Diavik facilitators who are doing consultation work, thank you for putting this together.
1038 I am glad that we are able to move forward ahead with less COVID restrictions in place. Zoom
1039 meetings are not too helpful sometimes. I am very glad that we do have a TK panel for this mine
1040 site not only on scientific alone as done in the past. A lot of mines only did the scientific way,
1041 and the land and animals were never thought of in the past. Sometimes these mines just leave
1042 whatever [inaudible] they bring on the land and destroy the area. An example of this is Giant
1043 Mine. I am very glad that the TK Panel was formed so they could help the land better and not
1044 destroy like it was done in the past. I thank everyone, I know hopefully we will all be together
1045 again to go over those 200 recommendations and the planned session in June.

1047 **Barbara:** Thank you, I am really thankful that I came to this TK panel meeting. I really felt the
1048 Elders when they speak, they talk about when they were younger and how the land has really
1049 changed now that they are older. It is really nice to hear stories like that from the Elders. Our
1050 discussions regarding the closure was very informative.

1051
1052 It really concerns us people so I am glad that Diavik is doing this and hopefully they can
1053 continue until they are fully closed. Please speak up and say what you want to say, I was
1054 holding back from saying something, but Jack told me I needed to say how I feel and express
1055 myself. I am glad to be part of this team. Next time Nancy will be here. And for the Elders, thank
1056 you for being here. Quana so much for being here.

1057
1058 **Laura Jane:** I am glad to be here, we had a good meeting. I like being in this kind of a setting
1059 because I learn lots. I hardly know anyone here, but I know that we are all some how related.
1060 But we have to help each other and help our land. Our land is beautiful. In the morning when the
1061 sun comes up you look at it and you look outside your surroundings you have to say thank you.
1062 So, we all have to work together, go to meetings like this. Next time we see each other we say
1063 hello. Have a good trip back home. Thank you.

1064
1065 **Peter Sangris:** I would like to say thank you for having me attend this meeting here. What we
1066 all discussed here is very important. We all have to help each other. Even though it is very hard
1067 to discuss we all have to listen to each other and give each other words so that we can come to
1068 an agreement. If we work together, through that work and through the action it will end up good.
1069 We can't always just work for ourselves because our neighbour could be doing something else
1070 that is different from us.

1071
1072 Good words came out that I heard so far during this three-day meeting. We are talking about
1073 this mine that is going to close so what we want to do is have this mine and the workers all
1074 listen to each other and help each other to make the land good again.
1075 I am thankful for that that we are all agreeing. We were all here for three days, but I am getting
1076 older now and I am getting tired. I am thankful that I am still here with you, to give you my
1077 thoughts. This was a very much this was a very interesting three days. Thank you so much.

1078
1079 **CLOSING PRAYER**
1080

APPENDIX E

Photos



Photo 1 Members of the TK Panel discussing their recommendations



Photo 2 Prize Table



Photo 3 The translator booths and audio-visual equipment

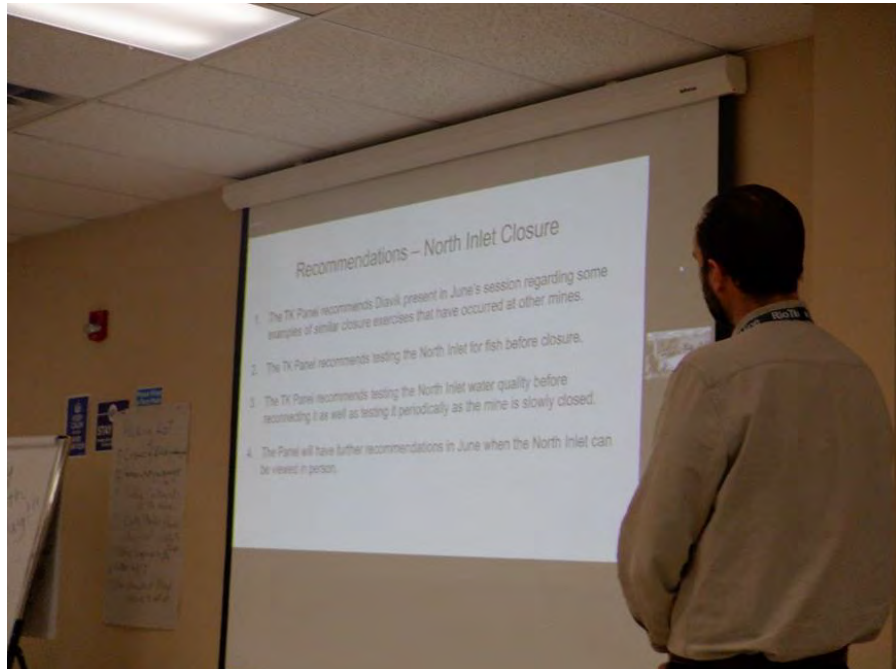


Photo 4 Sean Sinclair reviewing the Panel's recommendations on the North Inlet



Photo 5 Peter D Sangris and Mary-Jane Francis of YKDFN



Photo 6 Peter Clarkson asking the Panel questions about their recommendations on the PKC cover

DDMI TRADITIONAL KNOWLEDGE PANEL SESSION 15

TK Watching Program, Full Historical Recommendation Review, and Status Update



Photo Credit: Det'on Cho Environmental and Diavik Diamond Mines Inc.

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August 5, 2022

EXECUTIVE SUMMARY

Since 2011, the Traditional Knowledge (TK) Panel has guided Diavik Diamond Mines (2012) Inc. (DDMI) to consider Traditional Knowledge appropriately and meaningfully in operations, environmental management, and monitoring as well as closure planning at the Diavik Diamond Mine Site. The TK Panel consists of Elders and youth from Diavik's five Participation Agreement communities.

The TK Panel gathers at least once a year to discuss issues and concerns so Diavik can be made aware of their input and ensure that it is considered in project operations and closure activities. There have been 15 TK Panel sessions held. The most recent was from June 7th to June 9th at the Tree of Peace Friendship Center in Yellowknife, with a trip to the Diavik Diamond Mine on June 8th.

The purpose of this session was to provide an opportunity for DDMI staff to present the status of past recommendations back to the TK Panel and to further the discussion around the TK Watching Program (referred to as TK Monitoring Program in the Session #14 Report). Due to COVID-19 restrictions at the mine site during the 14th Panel session, participants were unable to travel and view the closure features that were being discussed during that session. As a result, the TK Panel was invited to the site for a one-day trip, during session 15, where various mine features were viewed, and Panel questions were answered.

This report summarizes the events of the 15th TK Panel session and outlines the recommendations put forth by the Panel regarding the closure of Diavik. The recommendations presented in this report are the same recommendations presented by the Panel participants to DDMI on the final day of the TK Panel Session. To contextualize the recommendations, they are presented in this report with a description of the rationale where applicable. This approach allows for DDMI to better address the recommendation, improve recommendation implementation tracking, and allow future participants to understand the nature of past recommendations.

This Executive Summary is not intended to be a stand-alone document, but a summary of the following Report. It is intended to be used in conjunction with the scope and limitations described therein.

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LIST OF ACRONYMS AND ABBREVIATIONS

Acronym / Abbreviation	Definition
DCE	Det'on Cho Environmental
DDMI	Diavik Diamond Mines (2012) Inc.
KIA	Kitikmeot Inuit Association
LKDFN	Łutselk'e Dene First Nation
Mine	Diavik Diamond Mine
NSMA	North Slave Métis Alliance
PA	Participation Agreement
PKC	Processed Kimberlite Containment
the Panel	Traditional Knowledge Panel
the Program	TK Watching Program
TK	Traditional Knowledge
YKDFN	Yellowknives Dene First Nation

1.0 BACKGROUND

Since 2011, the Traditional Knowledge (TK) Panel has guided Diavik Diamond Mines (2012) Inc. (DDMI) to consider Traditional Knowledge appropriately and meaningfully in operations, environmental management, and monitoring as well as closure planning at the Diavik Diamond Mine Site (Mine). The TK Panel consists of Elders and youth from Diavik's five Participation Agreement communities. One male Elder, one female Elder, and one youth are selected by each of Diavik's five Indigenous groups:

- Kitikmeot Inuit Association (KIA)
- Łutselk'e Dene First Nation (LKDFN)
- North Slave Metis Alliance (NSMA)
- Tłıchǫ Government
- Yellowknives Dene First Nation (YKDFN).

The TK Panel gathers at least once per year to discuss be presented information from DDMI, discuss issues and concerns related to activity on site, and to make DDMI aware of their input and ensure that it is considered in project operations and closure activities. There have been 15 TK Panel sessions held. Due to availability and timing of sessions, the TK Panel members in attendance vary from session to session. The most recent session occurred June 7th to June 9th at the Tree of Peace Friendship Center in Yellowknife, this included a daytrip to the Diavik Diamond Mine (Diavik or the Mine) on June 8th. During this session the TK Panel reviewed the recommendations that have been made to date and considered what a TK Watching Program during and after closure would look like. The TK Watching Program (the Program) was formerly referred to as the TK Monitoring Program during Session #14, it has since been changed to better reflect the goals of the Program and to address feedback from the Panel during Session #14.

2.0 SESSION PURPOSE AND OVERVIEW

The purpose of this session was for DDMI staff to provide an update on the status of recommendations made by the TK Panel since the Panel's inception 11 years ago up to Session #12. Additionally, this session focused on the TK Watching Program, which was discussed in Session #14, and is meant to incorporate TK and on-the-land observations into closure monitoring.

Session #15 also included a one-day site visit to Diavik. This site visit was the first one for the Panel since the suspension of visitors to site due to COVID-19 protocol in 2020. The site visit served as an opportunity for Panel members to see the changes that have occurred over the past two years and to view the areas of the mine discussed, but not visited, during Session #14. During this visit, the TK Panel was given a tour of various locations around the mine site with the opportunity to ask questions of DDMI staff. Refer to **Section 3** for a list of mine features viewed on the site tour.

While a TK Watching Program was discussed during Session #14, many of the participants in attendance expressed an interest in seeing the mine site in person to make better informed recommendations on the closure plans for different areas of the mine. Additionally, the discussions of a TK Watching Program warranted more time than was available during Session #14 to provide detailed recommendations and was therefore the focus of Session #15.

2.1 Session #15 Overview

In addition to the 14 participants, the facilitation team, and DDMI representatives, there were also one staff member from YKDFN, one Environmental Monitoring Agency Board (EMAB) representative, and five interpreters in attendance.

Table 1 TK Session #15 Attendees

Affiliation	Name	Role
Det'on Cho Environmental (DCE)	Peter Clarkson	Facilitator
	Brenda Michel	Facilitator
	Claire Tincombe	Facilitator/Transcriber
Diavik Diamond Mine Inc. (DDMI)	Myra Berrub	DDMI Staff
	Gord Macdonald	DDMI Staff
	Sean Sinclair	DDMI Staff
	Gordon Cumming**	DDMI Staff
	Jessie Eyakfwo**	DDMI Bus driver
Kitikmeot Inuit Association (KIA)	Barbara Adjun	Participant
	Nancy Kadlun	Participant
	Vikki Niptanatiak	Participant (youth)
Łutsel K'e Dene First Nation (LKDFN)	Albert Boucher*	Participant
	August Enzoe	Participant
	Bertha Catholique	Interpreter
	Sara Boucher	Interpreter

Affiliation	Name	Role
North Slave Métis Alliance (NSMA)	Katherine Arden	Participant
	Wayne Langenhan	Participant
Tłıchq Government	Monique (Margaret) Nitsiza	Participant
	Charlie Apples	Participant
	Benjamin Pea'a	Participant (youth)
	James Rabesca	Interpreter
Yellowknives Dene First Nation (YKDFN)	Peter D Sangris	Participant
	Mary-Jane Francis	Participant
	Natisha Drygeese**	YKDFN Staff Representative
	Lena Drygeese	Interpreter
	Mary Rose Sundberg	Interpreter
Environmental Monitoring Agency Board (EMAB)	Dylan Price	Observer/EMAB Staff

*Indicates a TK Panel member who did not travel to the Mine site but was present during the Yellowknife-based portions of the session.

**Indicates a participant or attendee who was present at the Mine site but was not present during the Yellowknife-based portions of the session

3.0 SESSION GOALS AND ACTIVITIES

The main activities of this session included a presentation from DDMI on the status of recommendations made by the TK Panel since the TK Panel began and discussion regarding the proposed TK Watching Program.

The session began with a review of the agenda among participants and any adaptations were made. A copy of the agenda can be found in **Appendix A**.¹ All participants, visitors, and presenters were then asked to review and sign an Informed Consent form (**Appendix B**). To bring new participants up to speed, the facilitation team outlined the overall goal of the TK Panel and the expected outcomes of the sessions. For new TK Panel members, DDMI began with an overview of the site, including the presentation of a fly-over video outlining the features of the Mine site.



Photo 1 TK Panel Youth Member Benjamin Pea'a and DDMI Staff Jessie Eyakfwo opening the site visit with drumming.

¹ The agenda was adapted, at the request of the Panel, to include a discussion with DDMI staff regarding the change in facilitators. The current facilitators were not present during this discussion and it is therefore not included in the transcription notes.

DDMI staff delivered a summary presentation on the status of all 210 recommendations made and recorded through the TK Panel since its inception in 2012.² A copy of the presentation can be found in **Appendix C**.

This presentation was given in response to requests from the TK Panel. Since the participants at the TK Panel have changed over the last 10 years, some participants have less knowledge of recommendations previously provided by the Panel. Through the review of past recommendations with the TK Panel members in attendance, and the development of a handout for future additional members, members will be able to provide recommendations that consider choices made and discussions had during past TK Panel sessions. Additionally, DDMI presented the summary of recommendations and status update to demonstrate where TK Panel recommendations have impacted the operations and planning at the mine and highlight instances where recommendations were not applicable and were therefore not addressed.

The recommendations were divided into the categories below, recommendations were then further filtered based on their status as completed, in progress, or unactionable:

- Environment
 - Wildlife
 - Vegetation
 - Fish and Water
- Mine Areas
 - Processed Kimberlite Containment
 - Open Pits
 - Rock Piles
 - North Inlet
- Spiritual and Cultural
- Traditional Knowledge Based Observation



Photo 2 Attendees of the Diavik Diamond Mine site visit.

Of the 210 recommendations made by the TK Panel between 2012 to 2019, 81 recommendations have been completed, 69 are in progress, and 11 have been accepted but not started. There were 28 that DDMI could not address and 21 that were not appropriate for DDMI to address or were considered statements.

² The recommendations from Sessions #13 and #14 were not included in the recommendation status presentation as neither Session's recommendations had been finalized before Session #15. Separate presentations outlined DDMI's responses to recommendations made in TK Panel Sessions #13 and #14.

Due to the risk of COVID-19 and the possibility of having to isolate at site if a positive case of COVID-19 were recorded, the TK Panel met at the Tree of Peace Friendship Center in Yellowknife and spent one day at the Mine site rather than Diavik hosting all 3 days of the session at the mine as was typically done. The following areas of the site were visited during the day tour of Diavik:



Photo 3 Site visit attendees observing the landfill.

1. North Inlet
2. A418 and A154 pits
3. Landfill and Processed Kimberlite Containment (PKC) Facility
4. Vegetation test plots
5. Test piles for NCRP cover
6. Waste Transfer Area
7. Windfarm and Pond 7

Participants toured the mine site in a bus with narration by DDMI staff. With the exception of the test piles for the NCRP cover and the Waste Transfer Area, which were viewed from inside the bus, participants were invited to leave the bus at each stop to view the area and ask questions of the staff in attendance. Following the site tour, the TK Panel met in the Diavik gymnasium to reflect on what they observed during the tour and ask further questions of DDMI staff. A transcription of this discussion can be found in **Appendix D**.

During the final day of the session, the TK Panel met in Yellowknife to debrief from the previous day's site visit and to further discuss the details of the TK Watching Program. The last day of the session concluded with a presentation of the TK Panel's recommendations.

"I am so happy to come back and keep coming back. Especially when I can see what is working right and what is working great. The first time I came, our land was so hurt, but getting closer to the closure I feel good to see what is working right and thankful for groups like this."

*Nancy Kadlun, TK Panel Member
from the Kitikmeot Inuit Association*

4.0 REPORT OUTLINE

This report summarizes the events of the 15th TK Panel session and outlines the recommendations put forth by the Panel regarding the closure of Diavik. The recommendations presented in this report are the same recommendations presented by the Panel participants to DDMI on the final day of the TK Panel Session. To contextualize the recommendations, they are presented in this report with a description of the rationale. This approach allows for DDMI to better address the recommendation, improve recommendation implementation tracking, and allow future participants to understand the nature of past recommendations.



Photo 4 TK Panel members and DDMI staff at one of the open pits.

The appendix includes the following:

- A copy of the Informed Consent Form (**Appendix A**)
- A copy of the Meeting Agenda (**Appendix B**)
- DDMI Presentation material and Handouts (**Appendix C**)
- Verbatim transcription notes from each day of the TK Panel Session (**Appendix D**)
- Photos from the TK Panel Session (**Appendix E**).

5.0 PROCEEDINGS: KEY QUESTIONS, THEMES, AND GUIDANCE POINTS

This TK Panel session provided an opportunity for DDMI to present information related to the status of past recommendations as well as further explore the design and delivery of a TK Watching Program. Recording recommendations from the TK Panel on the TK Watching Program was the primary objective of the session and the focus of the final day of the session. The premise of the TK Watching Program was discussed briefly during Session #14, however, it was revisited during Session #15 with a different approach. To encourage more discussion and brainstorming, the facilitation team divided the TK Panel into 4 breakout groups.

The breakout groups were divided as follows:

1. North Slave Métis Alliance
2. Kitikmeot Inuit Association
3. Łutsel K'e Dene First Nation
4. Tłıchq and the Yellowknives Dene First Nation

Each group was facilitated by either one of the 3 facilitators or by one of DDMI's staff representatives. During the breakout group sessions, participants were asked to consider what a successful TK Watching Program, post-closure, would look like. Facilitators prompted Panel members to share their thoughts on the design of the TK Watching Program, including (but not limited to):

- What categories should be observed post-closure?
- How often should observation take place?
- How should observations be made and recorded?
- Who should be making observations?
- What criteria would suggest that the land is returning to a more natural state?



Photo 5 Facilitator, Brenda Michel, pointing to an area of the vegetation test plots with Panel member Barbara Adjun.

The breakout group facilitators recorded the participants input/recommendations on flip charts. The recommendations for each breakout group were then presented to the overall TK Panel and DDMI representatives for consideration and discussion. These recommendations are summarised in **Table 3**.

6.0 PROCEEDINGS: RECOMMENDATIONS

Though the focus of Session #15 was to discuss past recommendations and a future TK Watching Program, some recommendations were made based on observation and discussion from the Mine site tour. Participants had not viewed the site since at least 2019 and as a result had general recommendations which are presented in **Table 2**.

"I was really pleased with the vegetation. We plotted 18 years ago and I didn't think it was going to work. I went back 3 years in a row and it was growing in one spot here, one spot there and so I lost interest in it in 3 years because I didn't think it was going to grow. But coming back 18 years later and it really did, it's going to work. So that one part that you did, you did a good job on it. So Marsi Cho, you guys did an awesome job."

Brenda Michel, DCE Facilitator discussing the success of the vegetation plots she helped plant 18 years ago while an employee at Diavik.

Table 2 General Recommendations

Number	Topic	Recommendation	Rationale/Context
15.1	Coppermine River	The TK Panel recommends presenting the results of the Coppermine River water testing to the community of Kugluktuk and discussing the possibility of sampling the river more frequently.	KIA representatives on the TK Panel expressed interest in seeing more frequent testing of the Coppermine River. DDMI staff explained that testing is done twice per year. It was determined that a presentation from DDMI on the results of this testing would be beneficial to the community of Kugluktuk.
15.2	Landfill contents	The TK Panel recommends Diavik present a list of the materials being buried in the landfill as well as the materials that are not permitted in the landfill.	The landfill at Diavik was viewed during the site visit on June 8th. This sparked interest from Panel participants regarding what is and is not allowed in the landfill and, subsequently, what waste is and is not trucked back out from the mine site.
15.3	Water monitoring at Lac de Gras	The TK Panel would like to see the water in Lac de Gras monitored in the winter and in the summer.	The Panel representatives expressed interest in seeing more frequent monitoring of Lac de Gras.
15.4	Landfill contents and back hauling	The TK Panel recommends backhauling unneeded materials on-site to limit the amount of waste in the Diavik landfill.	The Panel would like to see more backhauling throughout the closure process to divert unneeded materials from the landfill.
15.5	Remaining infrastructure at closure	The TK Panel recommends leaving some buildings for use by hunters, trappers, and monitors post-closure. These buildings are to be the shared responsibility of the federal government and the mine.	The Panel expressed interest in leaving some of the buildings currently at the Diavik Mine site post-closure for use by land users and Indigenous monitors.
15.6	Distribution of useable materials at closure	The TK Panel recommends communities be asked what resources they would like to have from the mine site upon closure.	Materials on-site, such as gym equipment and kitchen appliances, may be useful for the Participant Agreement (PA) communities.

Table 3 is the culmination of the recommendations made by each breakout group regarding the design and delivery of the TK Watching Program.

Table 3 TK Watching Program Recommendations

Number	Topic	Recommendation	Rationale/Context
15.7	Formation of a TK Watching Committee	The TK Panel recommends a separate TK Watching Committee be formed to determine the details of the Watching Program. The TK Panel will provide guidance to this committee as needed.	Though the Panel recommends Elders be a part of the TK Watching Program, the TK Panel representatives will likely need support from others to determine the logistics of the Program. As such, the formation of a TK Watching Committee could receive guidance from the TK Panel which would then be used to inform the creation of a TK Watching Program, including the details of the program and the timing of the site visits.
15.8	Land regeneration	The TK Panel recommends that the goal of closure be to bring the land back to as close to a natural state as possible and to allow for natural processes (such as erosion, rain, and wind) to help clean the area.	In early TK Panel sessions, some of the recommendations involved a more active approach to land regeneration (i.e., moving nearby soils or tundra mats to disturbed areas). However, in recent years the TK Panel has provided differing guidance that leans more towards a natural regeneration approach, where natural processes are left alone to regenerate the land.
15.9	Evolution of TK Watching Program	The TK Panel recommends the TK Watching Program not be static, it will need to evolve and adapt to the observations on the land and the effects of climate change.	The Panel emphasized that observations and decisions made throughout closure and into post-closure will impact various areas of the Watching Program, including what is observed, when it is observed, and how frequently.
15.10	Focus of TK Watching Program	The TK Panel recommends the TK Watching Program observe the following: Wildlife diversity, quantity, behaviour, and health (including observations of internal animal tissue) Vegetation health and quantity after the closure of the mine including mushrooms, lichen, berries, and plants. Water clarity in Lac de Gras in areas closest to the mine site should be observed. Fish camps should continue, and fish quantity, quality, and health should be observed. Sediment from the bottom of the lake should be scooped up and observed. Fly-bys to look at snow and ice conditions and cleanliness should be a part of the TK Watching Program. Animal counts and signs of animal carcasses can also be observed during these fly-bys.	The recommendations made regarding the focus of the TK Watching Program represent some areas where the TK Panel feels observations should be made. This is a preliminary list and will likely evolve through further discussion.

Number	Topic	Recommendation	Rationale/Context
15.11	Logistics of TK Watching Program	<p>The TK Panel recommends the following be incorporated into the TK Watching Program:</p> <p>Visit and observe every year or twice per year alternating between winter (when ice fishing camps with fish tasting and testing can occur and caribou migration can be observed) and spring/summer. Observations should be made at various locations.</p> <p>The Watching Committee will be the ones who go out on the land and make the observations. This committee should be made up of one elder per gender and one youth from each PA community as well as hunters and trappers. Land users should also have a way to report their observations to the Watching Committee. These reports would be made to Diavik and then communicated to the Watching Committee.</p> <p>Remote cameras (such as ones at the PKC and the NCRP) should be used to observe wildlife in-between visits to the site.</p>	The recommendations made regarding the logistics of the TK Watching Program represent some ways in which the TK Panel feels observations can be made. This is a preliminary list and will likely evolve through further discussion.
15.12	Focus of first 5 years post-closure	The TK Panel recommends that in the first 5 years the Watching Program focuses on; vegetation (as this will be a food source enticing animals to return to the land); the type, quantity, frequency, and use of the land by wildlife; the health and location of fish (including examining stomach content), the clarity and taste of the water; the way the PKC is functioning; permafrost health, and the returned presence of small mammals and birds.	The recommendations made regarding the timing of the TK Watching Program represent some ways in which the TK Panel feels observations can be made. This is a preliminary list and will likely evolve through further discussion.
15.13	Focus of first 10 years post-closure	The TK Panel recommends that, in addition to the 5-year focus areas, 10 years post-closure the TK Watching Program should focus on the presence of large mammals and the presence of fish and vegetation in the filled-in pits.	
15.14	Focus of 20+ years post-closure	The TK Panel recommends that, in addition to the 10-year post-closure focus areas, at 20 years the focus of the Watching Program should be to observe if people and animals are using the land as they once did before the mine was constructed.	
15.15	Site Access Post-closure	The TK Panel recommends Diavik determine how the TK Watching Committee will be able to access the site post closure.	TK Panel members discussed their desire to have some mine infrastructure left for monitors to use when visiting the former Diavik site post-closure. The logistics of this are not yet settled, however, the TK Panel recommends this be determined along side the development of the TK Watching Program.

7.0 TK PANEL NEXT STEPS

Through the TK Panel's discussion, DDML received recommendations which will aid in the development of a framework for a TK Watching Program during and after closure. As noted in the recommendations, the TK Watching Program will need to adapt to changes in the land over time. DDML intends further engagement activities to refine the Program and develop a plan for implementation. This plan will be submitted to the Wek'èezhii Land and Water Board by the end of 2022.

8.0 REPORT CLOSURE

Following a 2-year hiatus of visitors to the Mine site due to COVID-19, the 15th TK Panel provided a much-appreciated opportunity for TK Panel members to see the land with their own eyes and comment on the changes to it since their last visit. Additionally, Panel members were able to view areas of the site discussed during Session #14 and provide further comment and recommendations on the closure of those areas.

This report summarizes the events of Session #15, including the valuable TK shared by the Panel with DDML and DCE's facilitation team. We sincerely appreciate the opportunity to have assisted DDML with the facilitation of the TK Panel sessions. If there are any questions, please do not hesitate to contact the undersigned by phone at 867.873.6533 ext. 4102.

Report prepared by:
Det'on Cho Environmental



Claire Tincombe, BA (Honours)
Managing Director

Report prepared by:
Det'on Cho Environmental



Jennifer Loughery, PhD, P.Biol.
Project Manager

APPENDIX A

Informed Consent Form



Informed Consent Form

I (name) _____, give permission for Det'on Cho Environmental (DCE) and its technical service provider Hemmera Envirochem Inc (Hemmera), a wholly owned subsidiary of Ausenco Canada Inc. to record my comments, Traditional Knowledge (TK; also known as Indigenous Knowledge, IK), Traditional Environmental Knowledge (TEK), and Traditional Land Use Knowledge (TLU) for the Diavik Diamond Mine Inc Traditional Knowledge Panel #15.

Participation in the Project is voluntary and will include a 4-day TK Panel Session. The aim of these sessions is to promote the sharing of TEK and TLU information. The sessions will be documented through notes, photographs and may be audio/video taped for future reference. The results of this workshop will be shared in a summary final report and other project communications. Your comments and photographs may be used in the final report.

You do not have to answer any questions you do not want to, and you can withdraw your participation at any time (up until the Final Report is finalized) by letting the researchers know if and how you would like any of your contributions to date to be used.

We will undertake care to keep your contributions protected and secure. Information and contributions gathered during information sharing sessions will be securely stored and accessed only by Project researchers. Computer files (including audio/video digital files, if applicable) will be password protected and/or saved in restricted, access restricted folders on the Hemmera server. Written files will be kept in a locked file cabinet in the DCE/Hemmera, Yellowknife office. DCE and Hemmera will not use your contributions for any purpose other than for the Project.

We ask that you decide how you would like your contributions to appear in the workshop's findings. One of our ways of appreciating and acknowledging your contributions is to list your name as a contributor to the Project. **Please check 'yes' or 'no' to the following questions.**

Question	Yes	No
Do you consent to your name being used in the final report to reference your contributions to the discussion?		
Do you consent to your Indigenous Organization* affiliation being used in the final report beside your name? *Recognizing that you were chosen as a representative of your community but that your opinions are solely your own.		
Do you consent to pictures of you, taken during the session, being used in the final report?		

Signature of Participant

Date

I believe the person signing this form understands the study and the nature of their involvement. I will only apply their contributions according to the conditions stated above.

Signature of Researcher(s)

Date

Thank you for your time and contributions

APPENDIX B

Session Agenda

DIAVIK TRADITIONAL KNOWLEDGE PANEL SESSION

DRAFT AGENDA

Dates:	June 7-10, 2022
Location:	Yellowknife (Tree of Peace) (1-day trip to Diavik)
Presented by:	Diavik Diamond Mine Inc. Det'on Cho Environmental
File:	106573-01
Re:	Session #15 – Diavik Community Watching Program: Incorporating Traditional Knowledge into Closure Watching

Note: Session with community members in Yellowknife finalizing AEMP TK Camp documents on Monday June 6

Tuesday June 7, 2022 – Yellowknife Based

- | | |
|----------|--|
| 8:30 am | Arrival |
| 9:00 am | Opening Prayer and Welcome, Round Table Introductions, Review of Draft Agenda, Overview of Session Purpose:
‘How would you look at this land or water in the future to be comfortable it is returning to a more natural state’
Review of Process ¹ |
| 9:15 am | Presentation: TK Panel Recommendations (2012-2021) |
| 10:30 am | Break |
| 10:45 am | Group Discussion of Recommendations |
| 12:00 pm | Lunch |
| 1:00 pm | Group Discussion of Recommendations for Closure Watching Program |
| 2:00 pm | Site Tour – Review Plan |
| 2:45 pm | Break\COVID Rapid Antigen Tests |
| 3:30 pm | President – Introduction |
| 4:00 pm | Close |

¹ Breaks will occur as needed for participants and translators

Wednesday June 8, 2022 – 1-Day Travel to Diavik

7:15 am Check-in at G&G for travel to Diavik Mine

8:00 am Charter flight to Diavik Mine
Arrival at Diavik Mine, security, orientation*

9:45 am Cultural Ceremony

10:00 am Site Tour

11:00 pm Lunch

12:00 pm Discussion

12:30 pm Resume Site Tour

3:30 pm Break

3:45 pm Debrief Discussion

4:30 pm Check in for return flight

5:00 pm Depart for Yellowknife

6:00 pm Land at G&G

Thursday June 9, 2022 – Yellowknife Based

8:30 am Opening

8:45 am Diavik Community Watching Program: Incorporating Traditional
Knowledge Watching into Closure

10:00 am Break-out Group Discussions

12:00 pm Lunch

1:00 pm Group Discussion to Form Recommendations

2:00 pm Presentation of Recommendations to Diavik

3:00 pm Next Steps/Next Session

3:15 pm Closing Circle & Prayer

3:45 pm Close

G&G Address (Det'on Cho Logistics)

102 McMillan Street
Yellowknife, NT
X1A 3T2

APPENDIX C

Presentation Material



RioTinto

Summary of the Traditional Knowledge Panel Recommendations and Actions

June 7-9th, 2022

Tree of Peace, Yellowknife

Welcome & Agenda

- ❖ Opening Prayer and Introductions
- ❖ Setting the Context:
 - Site Overview Video
 - Closure and Reclamation Plan Update
- ❖ Summary of Recommendations by the Traditional Knowledge Panel Over Time





Part 1: Setting the Context

Site Fly-Over Video (Footage from Fall 2021)



Final Closure and Reclamation Plan Update

TK Watching

- ❖ Diavik plans to submit its Final Closure and Reclamation Plan to the Wek'èezhìi Land and Water Board by end of 2022.
- ❖ The Plan will include a framework for Closure TK Monitoring.

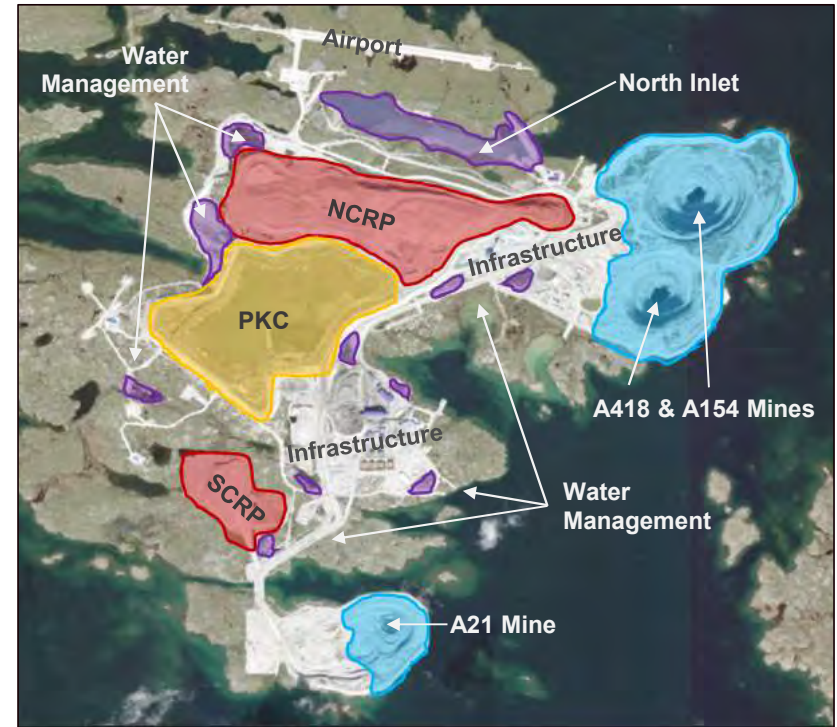


Diavik Closure Goals: Developed with input from communities and approved by WLWB

1. Land and water that is physically and chemically stable and safe for people, wildlife and aquatic life.
2. Land and water that allows for traditional use.
3. Final landscape guided by Traditional Knowledge.
4. Final landscape guided by pre-development conditions.
5. Final landscape that is neutral to wildlife – being neither a significant attractant nor significant deterrent relative to pre-development conditions.
6. Maximize northern business opportunities during operations and closure.
7. Develop northern capacities during operations and closure for the benefit of the North, post-closure.
8. Final site conditions that do not require a continuous presence of mine staff.



Closure Planning Overview



Mine Workings: Remove mobile equipment and hazardous materials, flood mines with water from Lac de Gras; dikes to be breached to allow full reconnection with big lake.



Rock Piles: Sloped sediment/till + rock cover to freeze potentially acid generating rock within NCRP; wildlife access ramps for safe passage on SCR.



Processed Kimberlite Containment: Rock cover to separate PK from people and wildlife and create a stable surface.



North Inlet and Water Management: Reconnect natural drainages to allow surface runoff flow into Lac de Gras. Allow natural bioremediation of hydrocarbon impacted sediments for as long as possible before North Inlet reconnection takes place.



Infrastructure: Removal of all mine infrastructure, disposal of all inert materials in on-site landfill unless they can be practically recycled, donated or sold; targeted revegetation; investigate alternative options where some infrastructure left behind to fulfill alternative future use.

TK Panel Sessions

14 Panel Sessions have been held 2012-2022

Session 13 has remained a draft

Session 14 report is under review

210 recommendations have been made



RioTinto

Themes:

Environmental

- ❖ Wildlife, vegetation, fish, water

Mine Areas

- ❖ North Inlet, Processed Kimberlite Containment, Open Pits, Rock Piles

Spiritual and Cultural

- ❖ Ceremonies, Historical Areas, Traditional Customs

Traditional Knowledge Based Observation Program

- ❖ Community members watching closure and the land

Environment: **Wildlife**

Completed Recommendations

- ❖ Cross cultural training to respect animals
- ❖ Included TK recommended caribou behaviours in monitoring program
- ❖ Shape rock piles to resemble eskers
- ❖ Create safe passage areas for wildlife (including considerations for caribou feet with fine materials)
- ❖ Find out if processed kimberlite could be harmful to wildlife
- ❖ Have a wildlife camera at the narrows



Wildlife Recommendations In Progress



Develop a caribou watching plan for closure and post closure – and with Ekati

Apply TK based approached to deter caribou at closure from unsafe areas

Develop ideas for community-based watching program and projects

Protect areas of natural vegetation and investigate that re-vegetated areas are safe to eat

Develop ideas for community-based watching program and projects

Develop ideas for community-based watching program and projects

Wildlife

Accepted Recommendations

These have been accepted by Diavik but not started

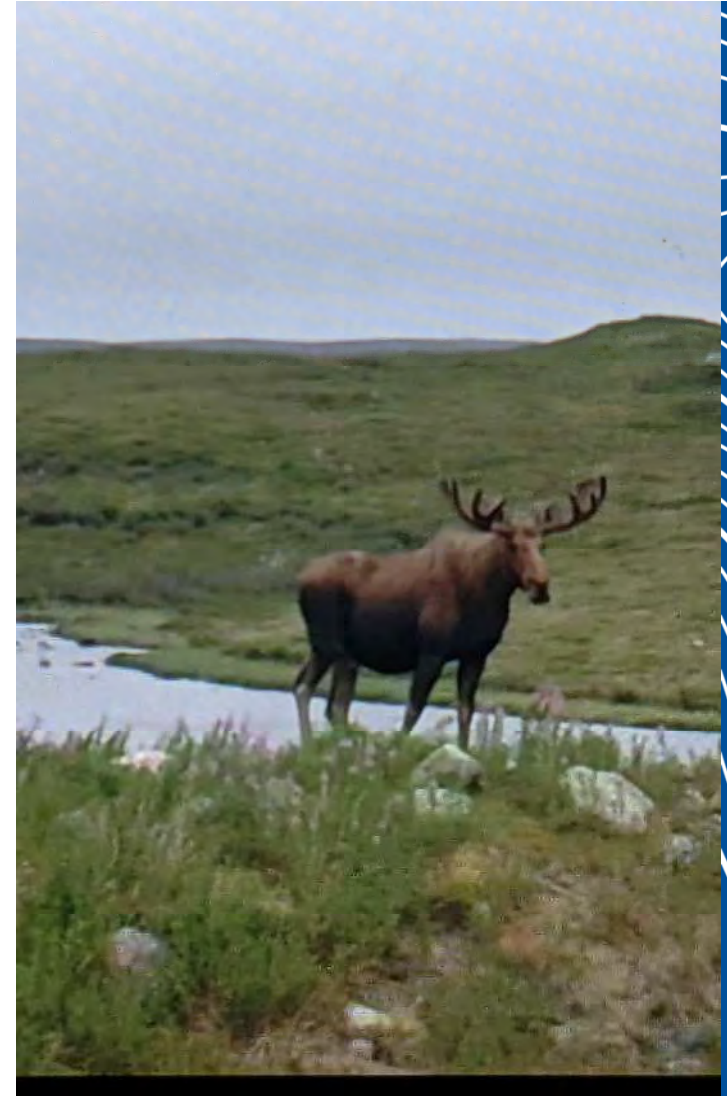
- ❖ Discuss where to have wildlife cameras at closure



Wildlife

Recommendations that could not be Actioned

- ❖ Not things Diavik can change on their own:
 - Moving the TK Camp to Lac de Sauvage
 - Changing the procedures when injured or dead wildlife are found
- ❖ Shift in ideas or plan:
 - Revegetating the rock piles
 - Neutral Presence
 - Processed kimberlite fines (slimes) moved to the pits
 - Freeze in place



Wildlife

Recommendations Determined to be Not Applicable

- ❖ Processed Kimberlite Containment Pond
 - The plan has changed to a rock fill cover
- ❖ Reshaping the dams around the processed kimberlite containment area for wildlife passage
 - Safety concerns



Vegetation

Completed Recommendations

- ❖ Maps of areas to be revegetated were developed
- ❖ Revegetate with native species – incorporated into plans
- ❖ Plan to cap rock piles with the best available materials
- ❖ Leave vegetation that has grown between pits and dikes when flooding the area
 - Provided other stakeholders (DFO) accept
- ❖ Do not build reefs in the bottom of the pit lakes



Vegetation

Recommendations In Progress

- ❖ TK Panel mine site visit to see revegetation plots
- ❖ Revegetate the North Country Rock Pile ponds
- ❖ Continued support for cumulative effects regional monitoring plan and station
- ❖ Development of a TK based watching program



Vegetation

Recommendations that could not be Actioned

- ❖ Using natural tundra mats
 - An area that Diavik has permission to disturb
- ❖ Using scat as fertilizer
 - Long term solution
- ❖ Use soils from outside of the mine site
 - Diavik would need to disturb a new area
- ❖ Revegetating the rock piles
 - Plan changed to having a neutral presence



Fish & Water

Completed Recommendations

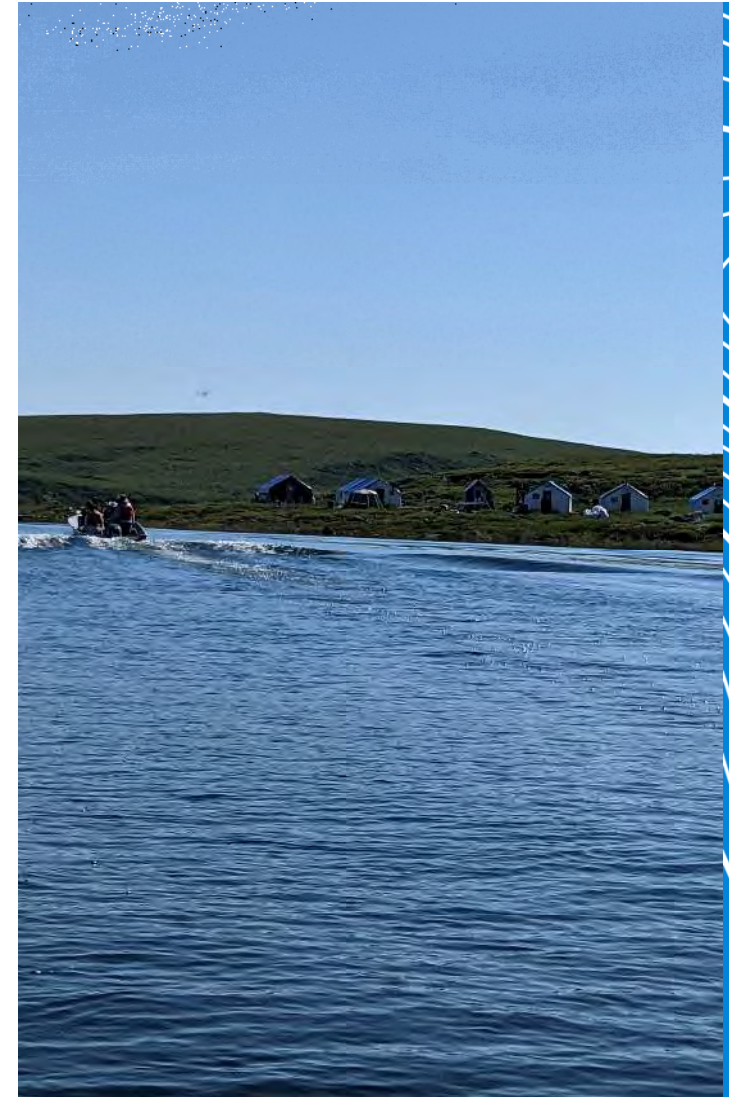
- ❖ Investigate wetland filtering for rock pile seepage water
- ❖ Have a moat around the North Country Rock Pile
 - There are ponds that would provide a similar function
- ❖ Drain the pond at the South Country Rock Pile – Fall 2017
- ❖ Investigated how to fill the pits to minimize degraded quality
- ❖ When and where to monitor water
 - Locations and times already monitored
- ❖ Discuss the North Inlet – Session 14



Fish & Water

Recommendations In Progress

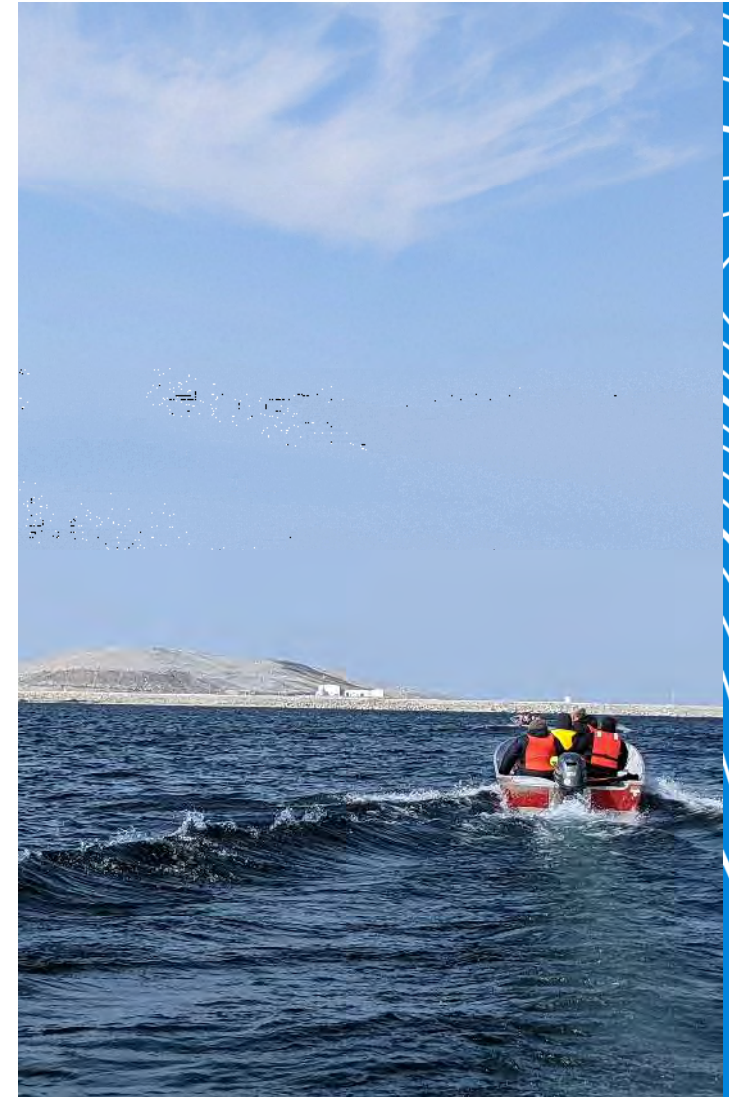
- ❖ Long term monitoring or watching plans
 - To show clean safe water before reconnecting & to study behavior in different seasons
 - North Country Rock Pile – frozen state
 - Pit Lakes
 - North Inlet
 - Watch for shorelines for algal growth
 - Fish monitoring
 - Record why some fish are rejected by Elders
- ❖ Monitor South Country Rock Pile water seepage



Fish & Water

Not Being Actioned

- ❖ Constructing channels to filter water seepage from rock piles
 - Natural channel exist
- ❖ Removing fine processed kimberlite (slimes) unless they are found to be nontoxic
 - Tested & are nontoxic
- ❖ Monitor and filter seepage from the Processed Kimberlite Containment (PKC)
 - Monitoring is done with natural filtration
- ❖ Stop adding slimes to the PKC
 - No other location for it to go to



Recommendations by Mine Area



Mine Areas: Processed Kimberlite Containment

Completed Recommendations

- ❖ Create a cover with a light-colored material
- ❖ Investigate the toxicity of the slimes
- ❖ Return the area to as natural a state as possible
 - Diavik researched the re-vegetation efforts in northern climates in 2014
- ❖ Provide an overview of the 16 closure options
 - Provided at the October 2013 Session
- ❖ The Beach material and rough kimberlite can remain in place to support a cover over slimes (2018 Panel)



Processed Kimberlite Containment

Recommendations that could not be Actioned

- ❖ Removing the slimes to a new location and find a hard surface to put a cover on
 - A new location could not be found
 - A cover will be built
- ❖ Open sections of the dam for natural flow of seepage
 - Safety concerns
 - conflicts with recommendations for natural filtration before the water reaches Lac de Gras
- ❖ Reshape the dam for wildlife passage
 - Safety concerns



Mine Areas: Open Pits

Completed Recommendations

- ❖ Leave vegetation between dikes and pits
- ❖ Leave the roads
- ❖ Do not disturb the walls of the pits when filling
 - Investigated and found minimal effect on water quality
- ❖ Tour the underground – May 2018
 - Some Panel members toured the underground areas while others toured the processing plant



Mine Areas: Open Pits

Recommendations In Progress

- ❖ The TK Panel has to be ok with the water quality in the pit lakes before reconnecting to Lac de Gras
 - This will involve continued discussions with the Panel and site visits



Mine Areas: Open Pits

Recommendations that could not be Actioned, or were not Applicable

- ❖ Test the growth of water plants around processed kimberlite
 - The processed kimberlite will be approximately 250m below the lake surface, below where sunlight will reach
- ❖ Put fish in the pit lakes to test the water
 - It will be difficult to recapture the fish
- ❖ Stock the pit lakes with bugs
 - Assumed to help clean the water but Diavik has not seen evidence of this



Mine Areas: Rock Piles

Completed Recommendations

- ❖ Design the rock piles to look like an esker with slopes for caribou passage and to be as wide and low as possible
- ❖ Make sure to keep the potentially acid generating rock contained within the North Country Rock Pile (NCRP)
- ❖ Design ramps for safe caribou passage
- ❖ Use material from A21 to avoid expanding the South Country Rock Pile (SCRP)
- ❖ Drain the pond at the SCRP – Fall 2017
- ❖ Collect and monitor seepage water



Mine Areas: Rock Piles

Accepted Recommendations in progress
and/or not started yet

- ❖ Revegetate the base of the NCRP
- ❖ Study wind and snow accumulation
- ❖ Design ramps for caribou on the South Country Rock Pile



Mine Areas: Rock Piles

Recommendations that will not be Actioned

- ❖ Revegetating the rock piles
 - The plan has changed to begin with a neutral presence to not attract wildlife
- ❖ Create barriers around the North Country Rock Pile to protect wildlife
 - Prefer to have a neutral presence and deter wildlife from the area
- ❖ Create channels for seepage water from the rock piles
 - Natural flow paths in the tundra through marsh areas for natural filtration



Mine Areas: North Inlet

Completed Recommendations

- ❖ Discuss the revegetation options for the North Inlet
- ❖ Do not reconnect the North Inlet unless the water and sediments are proven to be clean and the same as Lac de Gras
 - This is part of the closure plan



Spiritual & Cultural

Completed Recommendations

- ❖ Youth involvement in the TK Panel
- ❖ Women's involvement in the TK Panel
- ❖ Cultural inclusion and ceremonies
- ❖ Blending western science and TK approaches – knowledge sharing and cross-cultural learning
- ❖ Maintain a tracking sheet for the Panel recommendations
- ❖ Host materials online – EMAB website
- ❖ Provide experts to the TK Panel
- ❖ Host site visits for the TK Panel
- ❖ Include climate change considerations in planning



Spiritual & Cultural

Accepted Recommendations in progress

- ❖ Indigenous participation during closure activities
- ❖ TK watcher programs & training opportunities
- ❖ For the TK Panel to review existing monitoring methods to help choose what to monitor or observe

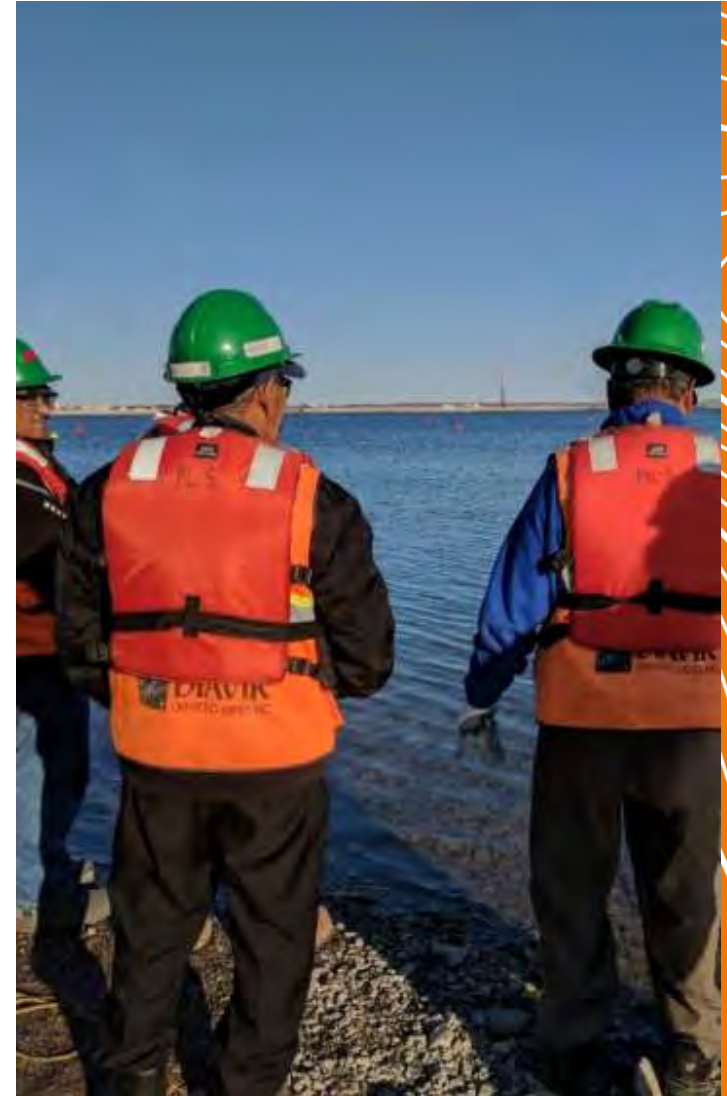


Spiritual & Cultural

Accepted Recommendations Not Started

Activities to occur at closure:

- ❖ Cultural visits and ceremonies at closure (nature of which to be determined by the Panel/community)
- ❖ For Diavik to contribute to healing ceremonies
 - Request to come from community organizations



Spiritual & Cultural

Recommendations That Could Not Be Actioned

- ❖ Hosting two panel sessions per year
 - Challenging some years for everyone to be available
- ❖ Testing the growth of water plants with processed kimberlite slimes for the pit lakes
 - The slimes will not be moved into the pit lakes

Recommendations Not Applicable Directly To Diavik

- ❖ TK Panel members to discuss recommendations with Elders who were unable to attend (Panel members are welcome to informally share recommendations with other community members)
- ❖ Communities working together strengthens all



Traditional Knowledge Based Observation

Completed Recommendations

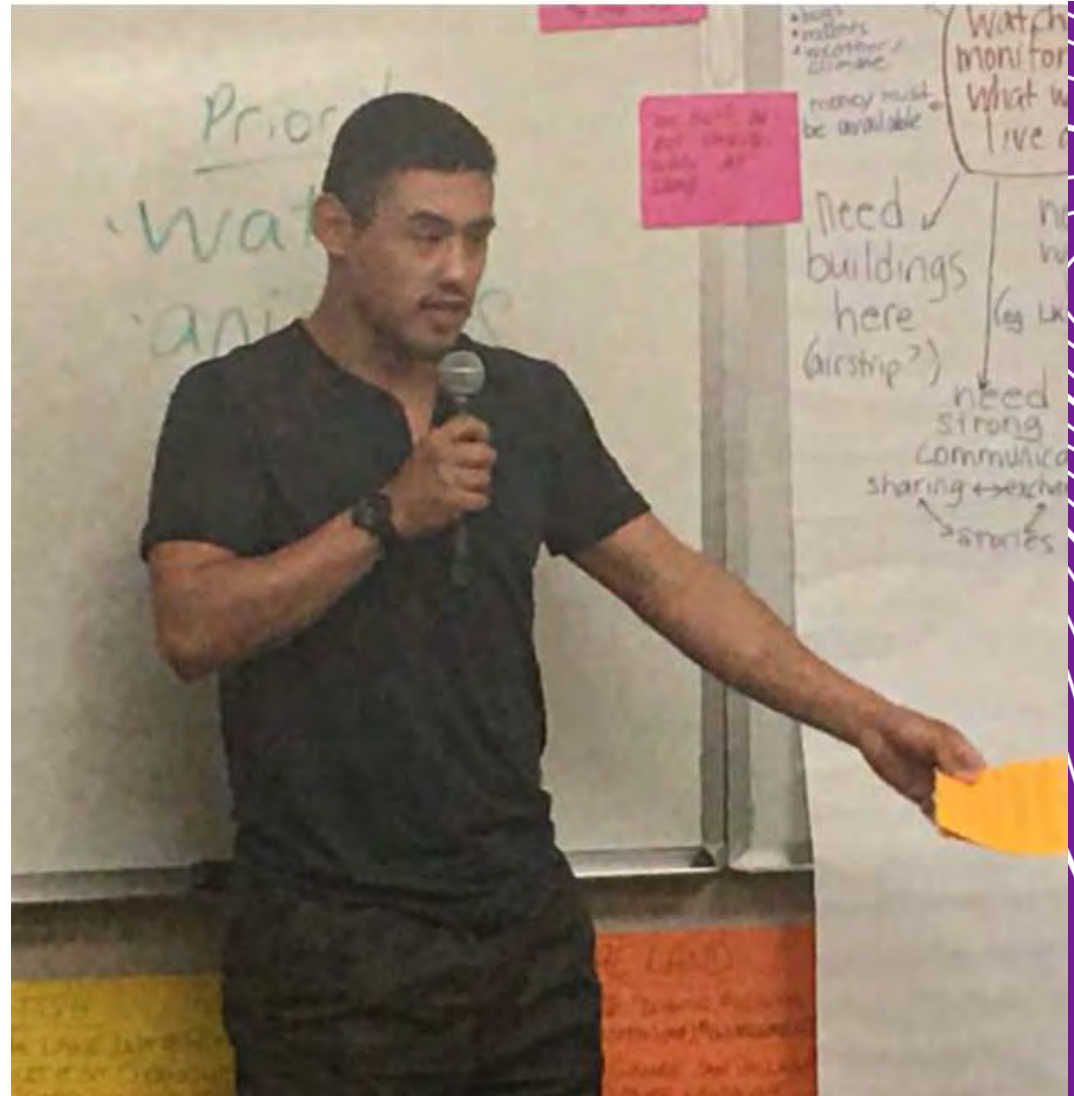
- ❖ Involve Youth and Elders
- ❖ Seasonality input - Monitor waters in late May to early June & in bays, drainage areas and runoff points
- ❖ Include visual observations of the water into water testing
- ❖ Plan for climate change
 - Diavik has modelled site conditions over 100 years in the future to design closure plans to work with those conditions
- ❖ Observe plants, sediments and bugs in pits



Monitoring & Traditional Knowledge Based Observation

Accepted Recommendations In Progress

- ❖ Leave buildings for the Watchers to use (after the mine closes)
- ❖ Assess how wind and water behave on the pit lakes compared to Lac de Gras
- ❖ Explore a long-term monitoring approach
- ❖ Train community members in watching or monitoring during operations, before closure
 - Diavik has commitments for western science-based monitoring (Aurora College, Mine Training Society)
 - **TK Watching training is felt to be more appropriate from the communities**



Traditional Knowledge Based Observation

Recommendations In Progress

- ❖ Watching should be done all year, or at a minimum each season
- ❖ Watching should include fish habitat in the pit lakes for fish and the shoreline for wildlife
- ❖ Monitor freeze-up and break-up of contained water areas (pit lakes, dikes)



Traditional Knowledge Based Observation

Recommendations in progress

❖ Watching project ideas (Session #10):

- What plants are growing on disturbed ground
- Presence of ground squirrels on the East Island
- Health of the shorebirds on the water
- Snow accumulation and natural revegetation around boulders atop the test pile
- Watch and monitor dust impacts on water and plants as an important part of the food chain
- Analyze and determine what types of animal scat are present
- Look at possible impacts on plants, with special consideration for those used for medicine

Traditional Knowledge Based Observation Program

Developing a TK based Watcher Program for Closure and Post Closure

- ❖ What else should a TK based Watcher program observe?





Wrap-Up of Recommendations

210 Recommendations

81 are completed

66 are in progress

**14 are going to be
actioned but have not
been started**

28 cannot be actioned

**21 not appropriate for
Diavik to action**

Spreadsheet of the
recommendations is available on
the EMAB website

TK Watching Recommendations - Complete

No.	REFERENCE	RECOMMENDATION	CONTEXT
8.26	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Provide opportunity for the TK Panel to view the present shoreline when snow-free to consider further recommendations (in spring).	Panel members have repeatedly expressed the importance of 'seeing with their own eyes'. This Panel session was held in December in Yellowknife, so many members were basing their discussions on memory and hadn't closely looked at the shoreline areas of the pits in the past. In order to confirm their preferences, Panel members would like to visit the shoreline areas within the dike when there is no snow on the ground.
8.4	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Water testing should be done by tasting fresh water and by boiling the water, letting it set overnight and drinking it the following day (observe scum and clarity).	Panel members recognized that not all people may drink tea, and that it would be better to use plain water to taste the lake water quality. In this way, the water is natural and any impurities would be easier to identify. However, the benefit of also boiling the water allows people to see if anything with the water changes after being heated, e.g. has a layer of scum, or materials settle out. It was agreed that people could make tea with the lake water on their own, if that was important to them.
8.5	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Set fish nets on both sides of the island (north and south).	Panel members felt that it is important to capture fish on both sides of East Island and closer to the mine itself. They would like to plan ahead for this for the next AEMP TK Study in 2018.

TK Watching Recommendations - Complete

No.	REFERENCE	RECOMMENDATION	CONTEXT
8.15	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Test water scientifically and not by tasting.	Panel members are uncomfortable with the idea of tasting water, as a way to test water quality, for water that is on the mine site. Panel members noted that scientific sampling is important for water testing, as it tests for things that cannot be seen or tasted. They also noted that visual inspections of the water (in the same areas that science samples would be taken) would be important for community members after closure.
7.13	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Complete the TK literature review report so that it can be used as a guide in the vegetation program and closure plan, and be available to communities.	As previously suggested by the Panel, there is value in compiling the existing TK that has been captured by community or company research in the past. Much of this information was compiled prior to Session 7, but a report was not completed. The Panel would like to see a complete report.
8.32	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Plan for climate change hundreds of years into the future.	There is concern that climate change will affect performance of some mine infrastructure and inadvertently impact the environment, for example by release of contaminated water. As such, Panel members want to make sure that climate change scenarios are considered in closure design and planning work in order to protect the environment long into the future.

TK Watching Recommendations - Complete

No.	REFERENCE	RECOMMENDATION	CONTEXT
12.5	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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 measurements to 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.
12.14	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	In-person and on-the-ground monitoring is important so people can feel comfortable.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
2.5	Renewing Our Landscape, 7 December 2012, pg. 35	Seasonality of monitoring must be taken into consideration when planning for post-closure monitoring.	Land, water and air are the three key areas of concern for Aboriginal people. TK monitoring seasons are: winter for hare, foxes, wolverine, etc; spring for caribou; summer for fish and water; fall for berries in muskeg and plants.
8.3	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	In future programs, document why certain fish are rejected by Elders.	It was noted that one of the participants in the 2015 AEMP TK Study rejected two fish for processing, but the reasons why were not well documented. It would be helpful to capture these reasons in future studies.
8.19	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Annually check for algae growth around shorelines as too much can be an indicator that there is less oxygen for the fish.	Panel members have experience with lakes in their home regions that have changed over the years. Many noted how algae and moss can be helpful in cleaning water, but too much build up of algae, especially along shorelines, may be an indicator that the water is not of good quality for fish. This is something that community members can help to identify through visual inspections of shoreline areas near the mine.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
10.24	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Research or monitoring methods that are offensive to elders (e.g. caribou collars) should lead to getting alternative method advice from elders. Diavik should check with the TK Panel as to whether any aspects of the current monitoring program is offensive and revise them accordingly.	The Panel focuses on closure planning and monitoring, but they are also interested in Diavik's operational monitoring and would like to learn more about monitoring programs, methods and results in order to determine if these are suitable and appropriate from a community perspective.
4.1.6	Checking Nets, 23-25 October 2012, pg.21	Include Aboriginal words or terms in reports as appropriate. Keep wording in reports simple and make summary notes available soon after a meeting.	Some Aboriginal languages include concepts that are very precise and reflect a more complete understanding than what can be translated. Language contains distinct concepts unique to TK so the spiritual premise of certain terms contained within the language can often get lost in translation. Plain language should be used so that all people can understand it, regardless of their language or reading skills. It is important for participants to review their words and make sure they were recorded and/or interpreted correctly while the words are still fresh in participant's minds.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
8.29	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Explore long term monitoring options including how to coordinate and administer an ongoing post-2030 program that continues to integrate TK and science and involves both Elders and youth trained in science. (Consider funding, and if some of the bond can be used).	TK Panel members are very interested in continuing to monitor the land and water in the Lac de Gras area after the mine is closed. Panel members are interested in exploring options for doing such work and determining how best to organize and fund such an initiative. There is a strong interest from the Elders to make sure that the youth of today are the future monitors for this work, which requires early involvement as well as capacity building in scientific and TK environmental monitoring.
9.9	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Contribute to training community monitors in using both traditional knowledge and western science so that common approaches across communities are used and results can be pulled together from many places.	The Panel felt that it is important to support capacity building for community members to actively participate in the closure process, particularly closure monitoring. They recognize that strength in monitoring can be achieved when western science (WS) and TK are conducted together. There is also value to ensuring that the similar techniques and methods are used across industry and communities so that this information is comparable.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
9.11	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Recognizing that Aboriginal communities are committed to their traditional responsibility to take care of the environment, participate with Diavik and other partners (e.g. Dominion Diamonds) to explore ideas and develop capacity to establish a Cumulative Effects Monitoring and Management Station (CEMMS) using the TK camp as a base that has program links to the GNWT Daring Lake Research Station.	The Panel viewed the TK camp as an ideal base for studying the Lac de Gras area after the mine was closed. The GNWT's Daring Lake Research Station is also in a good position to further support such research and the Panel saw value in coordinating efforts with the Government's programs at Daring Lake. In order to achieve this, the Panel identified the need for mines, government and other regulators to work together to determine how best to coordinate and implement a CEMMS (or similarly structured) program.
9.12	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	In partnership with communities and the GNWT, begin planning a joint TK and WS monitoring program that would begin in 2023 to be ready for implementation in 2025 by building on and expanding the current Diavik monitoring program.	Panel members consider intergenerational plans and programs, recognizing that there is a need for long-term monitoring in the Lac de Gras region long after the mining companies are gone. Given that it can take time to coordinate these types of programs, the Panel sees value in starting these discussions now so that plans are in place for when the Diavik mine is closed.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
9.13	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Offer monitor training to provide traditional land users with new skills and techniques to monitor from mine closure through to when Diavik completely leaves the site (expected to be 2030) and beyond for long term monitoring.	The Panel felt that it is important to support capacity building for community members to actively participate in the closure process, particularly closure monitoring. They recognize that strength in monitoring can be achieved when western science (WS) and TK are conducted together.
9.16	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Employ community monitor trainees and ensure they have a meaningful role in the design of various aspects of closure work, including the building of wildlife ramps; the reclamation of the PKC, the North Inlet and contaminated sites; and any re-vegetation work on site.	It is important to the Panel to have community members employed on site and participating in healing the land and ensuring a safe environment for future use by wildlife and humans.
9.17	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Employ and ensure opportunities for high level employment/career advancement of trained community monitors (graduates of the training program) funded by Diavik and/or others. In addition to community members, a minimum of one Elder and one youth from each community should participate in the training program.	It is important that community members have meaningful jobs at the mine, throughout the closure process.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
10.11	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	<p>Some start-up watching projects might look at:</p> <ul style="list-style-type: none"> - what plants are growing on disturbed ground and why/why not; - presence of ground squirrels on the East Island; - health of the shorebirds on the water (as an indicator for health of water); - snow accumulation and natural revegetation around boulders atop the test pile; - watch and monitor dust impacts on water and plants as an important part of the food chain; - animal scat, this should be part of a TK Watching program; - look at possible impacts on plants, with special consideration for those used for medicine. 	<p>The TK Panel is interested in starting to identify the types of things that are of interest to elders and youth to monitor. They recognize that more time and discussion is needed to build on these ideas and confirm what and how to watch the area, but that it is important to start documenting what has been shared to date.</p>

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
10.12	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Pair every adult with a youth monitor. Scientists should also be involved. Consider the TK camp as a good model, bringing elders and youth together with scientists.	The TK Panel members see great value in mentoring youth and advocate for including youth in TK programs wherever possible. The TK Panel recognizes that people learn from one another and respect the different kinds of knowledge that each person contributes. They view this as a good model to carry forward for closure monitoring.
10.13	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Ideally, watching would occur all year round. At a minimum, watching must occur in all seasons.	The land and animals behave differently depending on the season. There are important indicators to watch throughout the seasons and year to make sure that the land and animals are healthy. Panel members are interested in watching programs that would occur across all seasons.
10.14	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Watchers should be trained by trained monitors from existing guardianship programs (e.g. Ni Hat'ni Dene, Tlicho, Dehcho). From there, trained watchers will train new watchers through a pay-it-forward model.	Existing guardianship programs are celebrated as good models from which to learn. The next step will be to determine how best to apply their practices, resources, and support systems. Collaboration and sharing are keys to success.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
10.15	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Be designed for long term watching/monitoring as impacts may take a long time to show up (i.e. a plant may look healthy now but in the future it may not be strong if dust or contaminated water affect it).	Community members understand that nature has great power to heal, but that this can take a long time. The TK Panel wants to be sure that there are plans in place for long term watching and monitoring so that they can be confident that closure was successful and the land is healthy again.
10.16	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Watch and check everything (water, wildlife, birds, bugs, small mammals, plants, weather, etc.).	The TK Panel is interested in starting to identify the types of things that are of interest to elders and youth to monitor. They recognize that more time and discussion is needed to build on these ideas and confirm what and how to watch the area, but that it is but that it is important to start documenting what has been shared to date.
10.17	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Ensure long-term, ongoing and significant funding.	Funding and resources are important to secure when planning for long-term watching programs. The Panel recognizes that more discussions are required to determine how best to secure and maintain funding for this type of work.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
10.18	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Be grounded in strong communication and traditional laws around sharing, exchanging and stories.	Collaboration and sharing are the keys to success. Watching programs should be structured to include opportunities for sharing the rich stories that tell the history of the land and enrich monitoring outcomes. Scenarios that encourage sharing should be strongly supported.
10.19	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Start training for watching programs during mine operations by inviting community members to site, i.e. train-the-trainer program. For example, bring up people to work with Environment dept, starting with one weekend a month and scaling up over time.	The Panel recognizes the benefit of training monitors now in order to carry forward those skills for closure and post- closure monitoring at Diavik and other sites. The Panel is supportive of community monitors that are able to work in both worlds of knowledge - traditional and western scientific.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
10.22	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Diavik should plan to leave some buildings (and possibly the airstrip) to support Watching Programs for this and other mines in the surrounding area.	In order to conduct a watching program in the mine area long after closure, it would be helpful to have some buildings present that could be used for accommodation and monitoring activities. Communities will be interested in visiting and observing the area long after the mines are gone.
11.10	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.
11.11	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
11.12	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.
12.7	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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. 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. 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.

TK Watching Recommendations – In Progress

No.	REFERENCE	RECOMMENDATION	CONTEXT
12.13	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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 noninvasive methods. Any dead animals should be tested for contaminants. Report all findings to communities and the TK Panel.	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.
12.15	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	In-person and on-the-ground monitoring is important so people can feel comfortable.

TK Watching Recommendations – Accepted, Not Started

No.	REFERENCE	RECOMMENDATION	CONTEXT
8.12	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Monitor fish spawning areas closely, especially in the SE part of island (i.e. area just south of the pits).	Panel members are concerned about fish spawning in potentially contaminated areas, so they want to know if fish are using the areas close to the mine after closure.
12.12	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	
10.20	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Diavik should support and encourage the TK Panel to assess and review existing monitoring methods and results to help us determine what and how we should monitor in the future.	The Panel focuses on closure planning and monitoring, but they are also interested in Diavik's operational monitoring and would like to learn more about monitoring programs, methods and results in order to determine if they are suitable for closure monitoring and, if so, how best to apply these to closure.

TK Watching Recommendations – Accepted, Not Started

No.	REFERENCE	RECOMMENDATION	CONTEXT
11.15	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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).	Concerns were expressed about the effects of wind on the pit areas at closure, particularly nowadays with climate change and winds becoming stronger.
11.16	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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?]	Concerns were expressed about the effects of wind on the pit areas at closure, particularly nowadays with climate change and winds becoming stronger.

TK Watching Recommendations – Not Accepted, Not Applicable

No.	REFERENCE	RECOMMENDATION	CONTEXT
12.11	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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. 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.
10.23	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Diavik should support the development of a ‘best practices’ document that explains the Panel’s approach to integrating TK into mine closure planning.	The TK Panel is proud of their cooperative efforts to ensure that TK informs mine closure planning in a meaningful and transparent way. The TK Panel is interested in summarizing and sharing their knowledge and approach with others, in hopes that others considering projects in the north or elsewhere can benefit either now or in the future.
11.9	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.

TK Values & Concepts

Traditional Laws	Relationships and rules between humans and nature that are to be followed (when practicing traditional activities)
Symbolism	Ways in which beliefs are represented, and may include ceremonies
Reciprocity	Everything is shared for the greater good
Intergenerational	Everything done today impacts our families in the future
Stewardship	Responsibility to protect the land and its resources
Respect	Essential to demonstrate; providing support and a positive view of all living things and people
Recording Knowledge	Oral tradition/culture that is recognizing an increasing need to formally document historical knowledge
Seasonality	Life flows with the change in seasons
Natural Condition	The preferred state of the environment from a traditional perspective

TK Values & Concepts

Safety	Traditional practices that protect the land, animals and people
Nature is self-healing	The land and water will heal itself, given the right conditions
Consensus	Traditional leadership that seeks to find agreement
Experiential learning	Learning by observation and by doing
Social	Changing societal values that are influenced by globalization & access



RioTinto

Diavik Response to TK Panel Session 13 Recommendations

Traditional Knowledge Panel #15

6 May 2022, Yellowknife

Response to Session 13 – Vegetation Watching and Monitoring for Closure Recommendations

- 13.1: Complete chemical testing of rainfall at the mine site.
 - Rainfall chemical testing data is available and can be provided.
- 13.2: Hold a future TK Panel Session focusing on current and future vegetation monitoring that involves Diavik scientists, to enable us to comment on their program.
 - Vegetation monitoring was discussed in TKP #14. Closure monitoring will be described in the FCRP.
- 13.3: Ask Rio Tinto Exploration (or anyone operating in area) to watch caribou and record location, numbers and behaviour, back to communities (record or video as much detail as possible around the condition, size, and weight of caribou).
 - DDMI operations record this information for caribou but Rio Tinto Exploration does not have the expertise to complete these operations. Ekati and Diavik both endeavour to collect caribou data in a consistent manner.

Response to Session 13 – Vegetation Watching and Monitoring for Closure Recommendations

- 13.4: Watch for any new species of plants and animals and report them to communities, if they find them.
 - [DDMI wildlife and vegetation monitoring programs include this.](#)
- 13.5: Diavik and Elders should sample all animal scat from animals close to the mine when it is fresh, to see what animals are eating. Diavik should share the scientific results with TK Panel members.
 - [Caribou scat is evaluated by the GNWT. Other wildlife scat is outside the scope of the program.](#)
- 13.6: Also watch outside of the perimeter of the vegetation plots, add new plots, expand the size of the existing plots, and note any changes to the vegetation occurring over time. Visit the sites in summer to watch those plants, and also check for metals.
 - [Updates to the DDMI vegetation monitoring program will focus on revegetation for closure.](#)

Response to Session 13 – Vegetation Watching and Monitoring for Closure Recommendations

- 13.7: Diavik should share dust collection results with communities and the TK Panel members, including hard copies.
 - Dust sample results are available annually through the AEMP (https://wlwb.ca/registry/W2015L2-0001?f%5B0%5D=doc_document_sub_type%3AAEMP%20-%20Annual%20Report&f%5B1%5D=doc_document_type%3A7.%20Monitoring%20Programs).
- 13.8: Diavik should share water testing collection results with communities and the TK Panel. The main concern is related to dissolved oxygen.
 - Water sample results, including dissolved oxygen, are available annually through the AEMP (https://wlwb.ca/registry/W2015L2-0001?f%5B0%5D=doc_document_sub_type%3AAEMP%20-%20Annual%20Report&f%5B1%5D=doc_document_type%3A7.%20Monitoring%20Programs).
- 13.9: Diavik should share an update on what species are in the lake, both fish and vegetation.
 - Aquatic resources of Lac de Gras are summarized in CRP version 4.1 section 3, including references to more details (https://registry.mvlwb.ca/Documents/W2015L2-0001/Diavik%20-%20Closure%20and%20Reclamation%20Plan%20-%20Version%204.1%20-%20Dec%202017_19.pdf).

Response to Session 13 – Vegetation Watching and Monitoring for Closure Recommendations

- 13.10: Diavik should consider all previous TK Panel recommendations related to vegetation.
 - This will be considered in development of the TK Watching Program.
- 13.11: Monitoring should occur with Elders and youth for over 50 years, watching and testing using both TK and science.
 - This aspect of TK watching will be considered in development of the TK Watching Program.



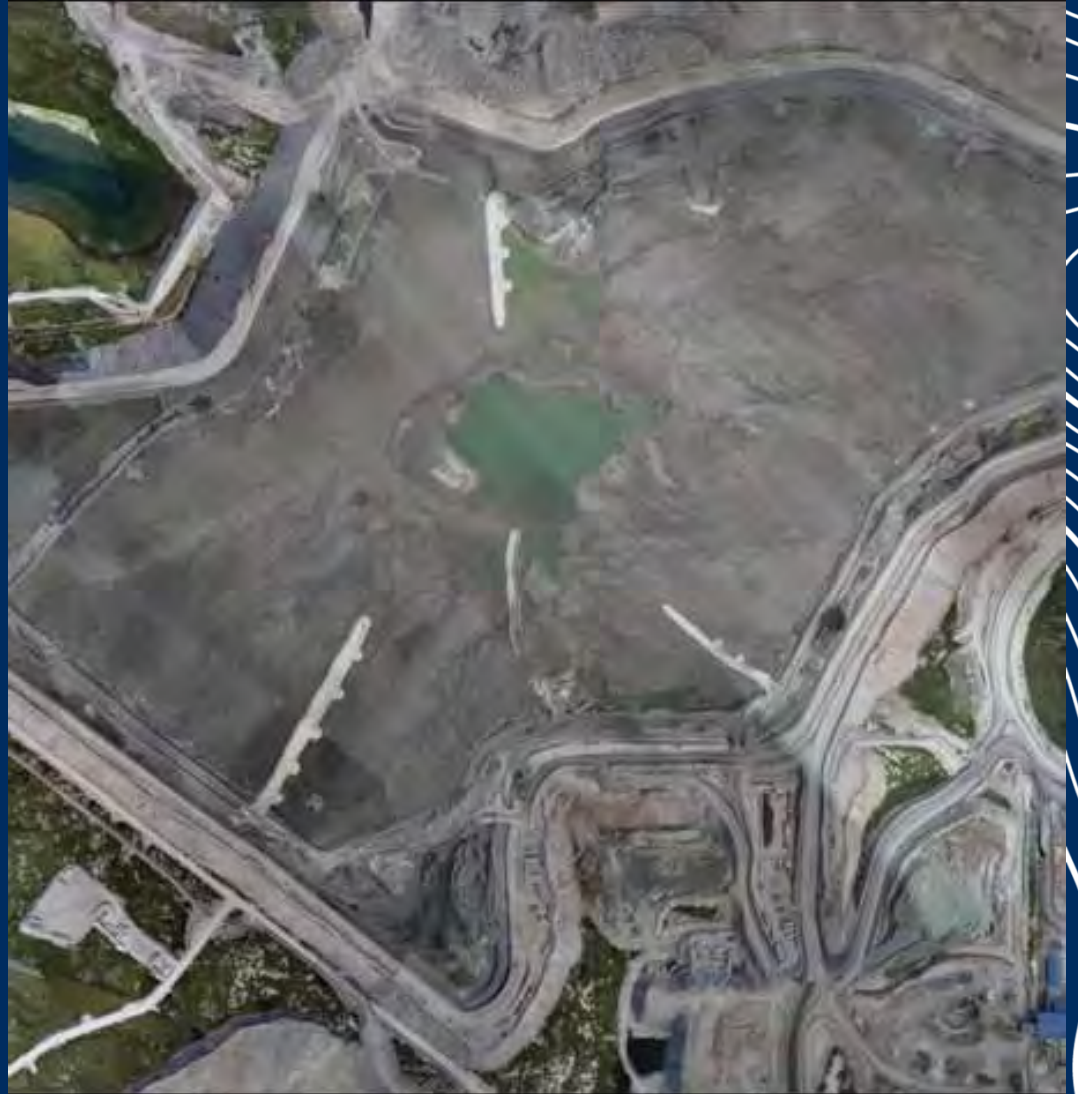
RioTinto

Diavik Response to TK Panel Session 14 Recommendations

Traditional Knowledge Panel #15

7 May 2022, Yellowknife

Processed Kimberlite Containment Cover Recommendations



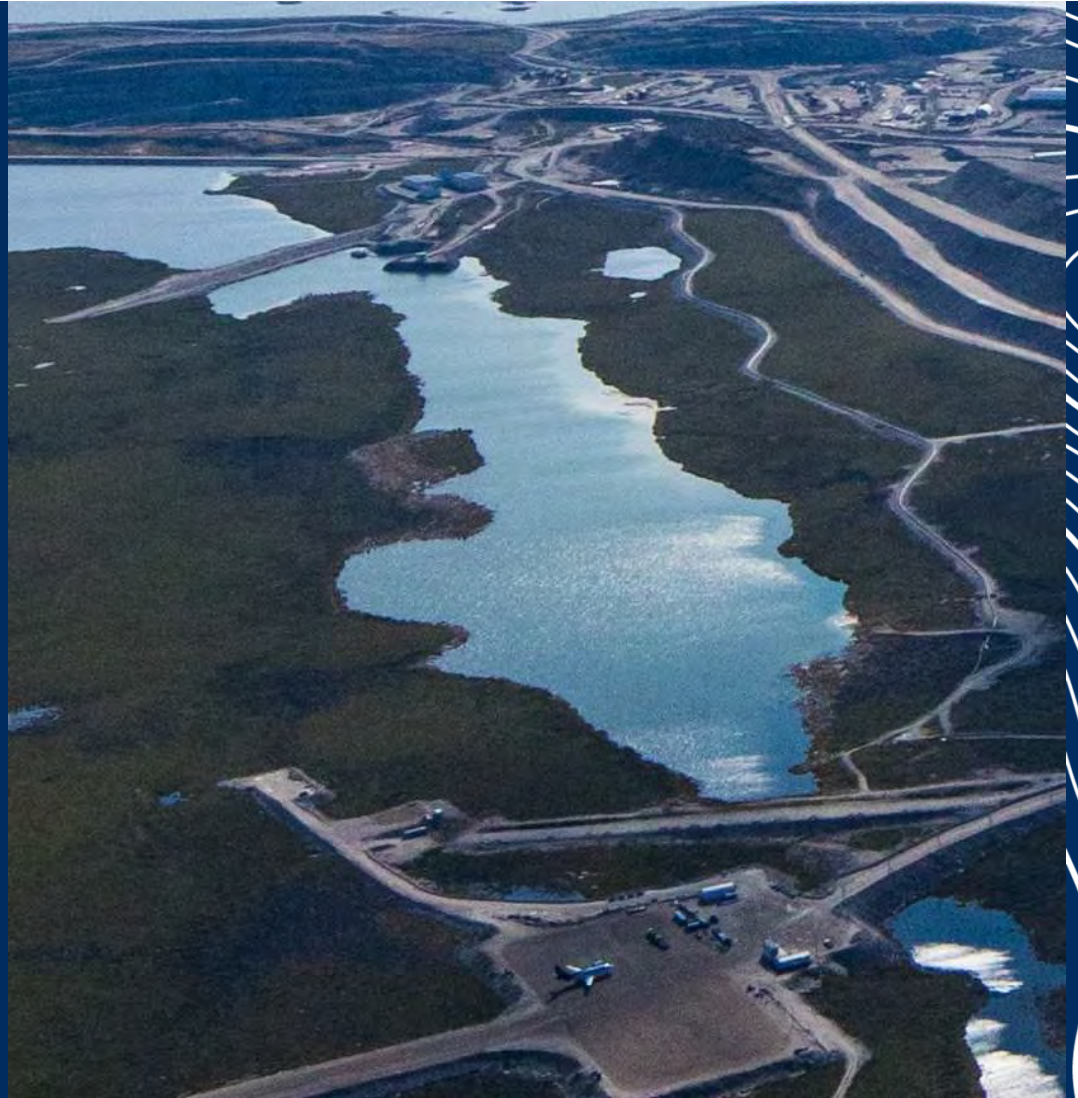
Response to Session 14 – PKC Cover Recommendations

- 14.1: The TK Panel recommends Diavik place large boulders around the processed kimberlite containment cover to keep the animals from going through it.
 - Discuss strategic placement of boulders after PKC cover in place (note existing 40 m high wall on three sides).
- 14.2: The TK Panel recommends Diavik monitor the freezing of the processed kimberlite containment cover by using thermistors
 - This is in engineering design plan.
- 14.3: The TK Panel recommends Diavik continue to monitor the frozen processed kimberlite cover even after the Mine closure to ensure that it is not attracting animals and not leaking into surrounding waterways.
 - This is in engineering design plan.

Response to Session 14 – PKC Cover Recommendations, continued

- 14.4: The Panel will have further recommendations in June when the PKC Cover can be viewed in person.
 - Diavik looks forward to receiving any further recommendations.

North Inlet Closure Recommendations



Response to Session 14 – North Inlet Closure Recommendations

- 14.5: The TK Panel recommends testing the North Inlet for fish before closure.
 - Diavik does not see a benefit in doing this. At closure, fish will be reintroduced through reconnection of the North Inlet to Lac de Gras.
- 14.6: The TK Panel recommends testing the North Inlet water quality before reconnecting it as well as testing it periodically as the Mine is slowly closed.
 - This will be included in the Final Closure and Reclamation Plan (FCRP).
- 14.7: The Panel will have further recommendations in June when the North Inlet can be viewed in person.
 - Diavik looks forward to receiving any further recommendations.

TK Monitoring (Watching) Recommendations



Response to Session 14 – TK Monitoring Recommendations

- 14.8: The TK Panel recommends monitoring occur for longer than 10 years, potentially up to 30.
 - This aspect of TK watching will be considered in development of the TK Watching Program.
- 14.9: The TK Panel recommends bringing 10-15 people out on the land over the next 30 years, 1-2 times per year to monitor the site after closure.
 - This aspect of TK watching will be considered in development of the TK Watching Program.
- 14.10: The TK Panel recommends hosting TK camps and fish camps at various locations around Lac de Gras, during different seasons, rather than just at one location.
 - This aspect of TK watching will be considered in development of the TK Watching Program.

Response to Session 14 – TK Monitoring Recommendations, continued

- 14.11: The TK Panel recommends using simple language as well as scientific language when conducting TK Monitoring Programs.
 - This aspect of TK watching will be considered in development of the TK Watching Program.
- 14.12: The TK Panel recommends inviting pre-existing community-based monitoring programs, such as Ni Hadi Xa, to Diavik as part of the development of the TK Monitoring approach. This should occur every year, potentially every season.
 - This aspect of TK watching will be considered in development of the TK Watching Program.

Response to Session 14 – TK Monitoring Recommendations, continued

- 14.13: The TK Panel recommends incorporating youth and Elders into the TK Monitoring Program to pass on information, including information about the use of plants as medicine.
 - This aspect of TK watching will be considered in development of the TK Watching Program.
- 14.14: The TK Panel recommends monitoring all animals after closure.
 - This aspect of TK watching will be considered in development of the TK Watching Program.
- 14.15: The TK Panel recommends monitoring dust, vegetation, and berries around Diavik as part of the TK Monitoring Program.
 - This aspect of TK watching will be considered in development of the TK Watching Program.

Response to Session 14 – TK Monitoring Recommendations, continued

- 14.16: The TK Panel recommends testing the water in Lac de Gras and the sediment at the bottom.
 - This is included in the operational and closure AEMP Programs.
- 14.17: The TK Panel recommends that DDMI look at all the TK Panel Session notes and recommendations and use those as guidance for a document summarizing what will be done for closure and the TK Monitoring Program.
 - This will be considered in development of the TK Watching Program.
- 14.18: The TK Panel recommends hiring Indigenous people who will work at Diavik for 2 weeks on and 2 weeks off as Environmental Monitors.
 - Diavik's preferred hiring is for Northern Indigenous people as Environmental Monitors.

Response to Session 14 – TK Monitoring Recommendations, continued

- 14.19: The TK Panel recommends including testing of water and fish in the Coppermine River.
 - Testing of water is included in the Operational and Closure AEMP. Fish are only tested in Lac de Gras.

General Recommendations



Response to Session 14 – General Recommendations

- 14.20: The TK Panel recommends allowing the water treatment plant to be the last building to close and running all remaining water use on-site through the plant.
 - This is the plan for closure.
- 14.21: The TK Panel recommends providing participants with information before the meeting to ensure enough time for review.
 - Diavik will endeavour to share materials in advance of meetings.
- 14.22: The TK Panel Recommends hosting the fish camp every 2 years rather than every 3 years.
 - This aspect of TK watching will be considered in development of the TK Watching Program.

Response to Session 14 – General Recommendations, continued

- 14.23: The TK Panel recommends that DDMI fund community based monitoring programs.
 - DDMI will fund a Diavik TK watching program at closure.
- 14.24: The TK Panel recommends that DDMI improve communication with communities about the timing of upcoming events or community meetings and provide information ahead of time for review. Better communication about where to find information about closure is needed.
 - Diavik plans engagements based on the availability of all affected groups. Diavik will endeavour to share materials in advance of meetings and to improve communication of information.

Response to Session 14 – General Recommendations, continued

- 14.25: The TK Panel recommends that DDMI bring 2 translators per language to TK Panel Sessions.
 - Diavik's policy is to have 2 translators per language when requested for meetings that are longer than half a day.
- 14.26: The TK Panel recommends DDMI present in June's session regarding some examples of similar closure exercises that have occurred at other Mines.
 - DDMI accepts this recommendation but was unable to action for the June session.
- 14.27: The TK Panel recommends leaving some accommodation structures on site.
 - This is being considered in the closure plan. This was partially addressed through Reimaging Closure (<https://lifeafterdiamondmining.com/about>).

APPENDIX D

Handouts

Traditional Knowledge Panel Recommendations 2012 to 2019

Prepared by Det'on Cho Environmental for Diavik Diamond Mines
(2012) Inc.
6-2-2022

TK Panel Recommendations Sessions #1 to 12: Wildlife

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.1	A Way of Life, 25 Oct 2012, pg. 19	During July/August, a regular training session should be planned for Diavik staff in ways of properly respecting caribou and other animals	Cross-cultural learning is important when there are two ways of knowing wildlife. Scientists and Environment staff have a different way of doing work and understanding wildlife compared to that of TK holders. Respect for wildlife by TK holders means following the traditional laws that govern the relationship between humans and individual species. A successful monitoring program requires good communication, and this can be challenging in a cross-cultural setting. Strong relationships and a special effort to understand the differences are key to success.	Diavik staff and community assistants participating in the monitoring program undergo onsite and field training prior to initiation of the program. In addition, standard operating procedures are revisited in the field throughout the process. In 2012 and 2013, Diavik invited community Elders and youth to participate in the monitoring program to observe staff performance and evaluate procedures. Minor changes were suggested and are currently being reviewed.	Accepted
1.2	A Way of Life, 25 Oct 2012, pg. 19, 25	When elders are brought to site for staff training exercises, youth delegates should also be involved	The youth are living in a changing and complex world now. They have skills that the Elders don't, and they can help in the future. Everywhere that the Elders are called upon to share knowledge or observe changes, the youth should be with them to both learn and share. Teaching stewardship is the responsibility of each generation of elders.	Due to the nature of remote field work, seating capacity may be limited. Adding a youth component to this program limits Elder participation but has generally been supported by the communities.	Accepted
1.3	A Way of Life, 25 Oct 2012, pg. 19	The TK-Science camp at the mine site is an important place for developing skills and capacity in cross-cultural caribou monitoring	Elders feel that they can be creative in collaborating with Diavik in a cross-cultural setting that includes observations and knowledge exchanges at the TK/IQ Camp.	Recommendation is outside the scope of the Caribou Behavioural Monitoring SoP. Such opportunities may be considered for future camps, depending upon the focus of the camp.	Accepted

TK Panel Recommendations Sessions #1 to 12: Wildlife

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.4	A Way of Life, 25 Oct 2012, pg. 19	The TK-Science camp (known as the CBM Camp) should be moved to a location north of Diavik on Lac du Sauvage. The setup must be in the Aboriginal way, not in a square, so that it's not threatening to the caribou.	In keeping with traditional laws governing relationship with caribou, the camp should be closer to the caribou migration route in order to develop skills and capacity in cross-cultural caribou monitoring. Aboriginal camps on the land have a specific way of being set up, and this should be respected for the set-up of the TK/IQ camp.	The camp site has been established in consultation with community members under a land use permit with the WLWB and will not be relocated. The footprint of buildings and other infrastructure will not be changed significantly, in order to reduce further impacts on the environment.	Not Accepted
1.5	A Way of Life, 25 Oct 2012, pg. 19	Monitoring results should be reported back to the communities on a consistent basis.	Participants expressed frustration at the lack of communication (and involvement) with community members relating to caribou monitoring at the mine site to date.	Diavik prepares annual wildlife monitoring reports and an Environmental Agreement (EA) summary report. Additionally, EMAB produces an annual report that summarizes findings and recommendations. Wildlife monitoring updates are also included in annual presentations to communities. Diavik welcomes any further recommendations on how best to ensure that this information reaches individual community members.	Accepted
1.6	A Way of Life, 25 Oct 2012, pg. 19	It will be valuable to "check nets" and synthesize what's already been done by Diavik to incorporate TK/IQ into its processes, and document/share lessons learned from these experiences in order to avoid repeating work already done.	Participants felt that they are often repeating themselves (to same and different companies) about many of these topics/concerns. A sign of being respected is 'being heard'; so to have to continually repeat themselves, TK holders feel disrespected. There is value in reviewing what Diavik has done to incorporate TK/IQ into their work.	Unclear if recommendation is addressed to the TK/IQ Panel or Diavik. Diavik is open to sharing information about current and upcoming TK/IQ plans and programs with the Panel for their review. Literature reviews have also been done to determine TK/IQ use for closure planning and vegetation.	Accepted

TK Panel Recommendations Sessions #1 to 12: Wildlife

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.7	A Way of Life, 25 Oct 2012, pg. 20	Use pictures and/or other visual tools as part of the form for caribou behavioral scans.	Visual representation of the different behaviours of caribou is likely more accurate and would be helpful for people conducting the scans, especially new hires. People see things through a cultural lens and may interpret what is seen differently.	An effort to take photos displaying various caribou behaviours was undertaken during the 2012 and 2013 monitoring seasons.	Accepted
1.8	A Way of Life, 25 Oct 2012, pg. 20	TK holders should be hired on a seasonal basis (i.e. spring through summer) to work with Diavik staff in caribou monitoring.	A TK holder on staff would be helpful in conducting cross-cultural training and monitoring considerations. Tradition requires TK holders to report their observations to each other and to discuss interpretation of those observations.	Most caribou monitoring is completed from August - October. DDMI brings Elders to site to participate in these monitoring programs each year.	Accepted
1.9	A Way of Life, 25 Oct 2012, pg. 20	Community meetings are a good way to gather more information on how caribou are doing	This can be a means of extending traditional monitoring practices to include scientists. Both parties are able to share their observations on caribou in a face-to-face meeting. Such an approach provides a good opportunity for community members to learn about what is happening at the mine in relation to caribou. And mine employees have a chance to learn what the communities are seeing in their areas.	Recommendation is outside the scope of the Caribou Behavioural Monitoring SoP. Diavik hosts annual community meetings that include discussions on caribou and other wildlife. Diavik has also coordinated and participated in many wildlife forums to discuss caribou health and management with numerous stakeholders.	Not Accepted
1.10	A Way of Life, 25 Oct 2012, pg. 20	Caribou observation logs can also be used by community members when they are on the land	TK holders adapt and are willing to use new tools to carry out their stewardship responsibilities. Harvesters in the community may find the Diavik forms useful, and it may be helpful information for ENR.	Recommendation is outside the scope of the Caribou Behavioural Monitoring SoP. Diavik can supply the field sheets to communities, if requested.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Wildlife

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.11	A Way of Life, 25 Oct 2012, pg. 20	Include more behaviors in the list for observation	Participants felt that there were other common behaviours not captured in the list. Community members are more familiar with different caribou behaviours and could help to expand the list and capture more detailed information. The intricate TK about caribou and caribou behaviour is required to inform good decisions. For example, caribou that are scared will often put their nose in the air, sometimes jump and then gallop fast; they are threatened because they do not know what is going on.	Elders from the YKDFN, NSMA and Tlicho participated in caribou behavior surveys in the fall of 2012 and 2013. One additional behavior has been recommended so far: curious (approached).	Accepted
1.12	A Way of Life, 25 Oct 2012, pg. 20; Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.6	Include more categories for herd composition and behaviour; involve two individuals nominated by the TK Panel to assist with updating the SOP.	Community members see caribou herds differently than scientists. For example, there are leaders and followers within a herd. Participants felt this would be helpful information to record because the relationship between herd members is important to understand in making decisions to reduce impacts on caribou.	Elders from the YKDFN, NSMA and Tlicho participated in caribou behavior surveys in the fall of 2012 and 2013. No additional categories have been recommended to date.	Accepted
1.13	A Way of Life, 25 Oct 2012, pg. 20	Utilize Aboriginal terms/concepts as identifiers	Participants expressed that there are Aboriginal terms that capture caribou activity or behaviour, perhaps more accurately than English terminology for them. Specific terms and concepts contain unique understandings important in governing the way we treat or 'manage' caribou. Specific terms and concepts contain unique understandings important in governing the way we treat or 'manage' caribou. Addition of such terms to the data form may be helpful for community members participating in surveys.	This may be beneficial in the future if caribou behavioural monitoring were to transition to communities.	Not Accepted
1.14	A Way of Life, 25 Oct 2012, pg. 20	Injured animals should be sent to ENR for assessment	It would be helpful to have as much information as possible about injured or dead caribou, so that community members are made aware of the cause. TK holders may have other ideas about how to safeguard caribou in the future.	Recommendation is outside the scope of the Caribou Behavioural Monitoring SoP. Diavik has a specific policy and procedures in place for reporting and handling of injured or deceased wildlife, and this involves ENR.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Wildlife

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.15	A Way of Life, 25 Oct 2012, pg. 20	Scientists and TK holders analyze dead caribou together	It would be helpful to have as much information as possible about injured or dead caribou, so that community members are made aware of the cause, can share information and learn the way that government analyzes caribou carcasses. TK holders and scientists can exchange ideas on causes and ways to prevent future deaths.	Recommendation is outside the scope of the Caribou Behavioural Monitoring SoP. Diavik has a specific policy and procedures in place for reporting and handling of injured or deceased wildlife. Diavik staff do not analyze dead caribou themselves; it is done by ENR.	Not Accepted
1.16	A Way of Life, 25 Oct 2012, pg. 20-23	Four key areas for monitoring: 1. Behaviours 2. Herd composition 3. Caribou health 4. Environmental conditions	These were identified as the key concerns of community members that are all factors considered in the traditional monitoring system; they should be monitored by Diavik. Indicators or signs of herd condition were identified within each of these areas.	Many of the indicators recommended that relate to herd composition, health and environment are more appropriate to be studied by government at a regional level. Behaviours and local conditions are included in the current SoP.	Not Accepted
4.1.1	Checking Nets, 23-25 Oct 2012, pg.8; Closure/Reclamation and Landscape History Interim Report, 23-25 October 2012, pg.8	The TK/IQ Panel should develop a report that more fully represents our knowledge and practice for maintaining the well-being of the caribou. TK assumes that all who live on the land of the caribou have stewardship responsibilities and must take these responsibilities seriously.	Many planning and monitoring gaps exist in relation to caribou and Diavik that have yet to be addressed, such as: Aboriginal monitoring approach (harvest camp), stewardship (traditional caribou laws), movement & cumulative impacts (monitor migration with youth), behaviour and herd composition (response to environmental influences, not just to mining). Preference is to monitor the herds when they are moving, north of Diavik.	Recommendation is to the TK/IQ Panel, however Diavik does not view this as within the mandate of the Panel. The Panel could recommend considerations for planning and observing caribou well-being in relation to the development of closure plans & post-closure monitoring programs.	Accepted

TK Panel Recommendations Sessions #1 to 12: Wildlife

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.3	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Use traditional techniques (e.g. flags, trees) to keep caribou away from areas that are unsafe (both near and far from site).	Caribou will find their old migration routes, but they also make their own trails that change over time. Some participants recognized that it is important to try to encourage caribou away from harmful areas far before they reach the mine site/East Island. Others felt that it would be impossible to prevent animals from coming to the mine site area. Consideration for guiding caribou on the mainland or around the island is a possible topic for future discussions.	DDMI proposes to hold a TK Panel session in the spring 2016 to discuss wildlife monitoring and management at closure. Further discussions to advance this concept would be well suited to this meeting.	Accepted
7.5	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Create safe passage for caribou over the rock pile and through the site following their old migration routes on the north and south east sides (refer to map developed during session).	Panel members felt that it was not necessary to plan too much for the animals safe passage, as caribou will ultimately go where they want and will find the ramp, road or easy way. Preference was to align the path with the old migration route and to keep the slope similar to that of the test pile - as natural as possible. There are some big rocks at the bottom of the rock pile that would need to be covered. It was seen as important to think about the slope in the winter too - how wind will deposit snow - not just when it is snow free. The berms on top of the rock pile were viewed as a barrier to caribou movement, so it would be preferred to remove them and also to remove the berm around the top of the pile.	This is very similar feedback to what community members said at a 2009 workshop relating to caribou at closure. Current closure plans, most notably for the rock pile, generally support this recommendation and the underlying reasons for the recommendation.	Accepted
7.8	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Allow more time for the TK Panel to discuss options for keeping animals away from certain areas (e.g. fencing).	Inuksuit are used to mark caribou crossings (nalluit) in Inuit culture. Other cultures use different techniques as well - e.g. flags, trees. More discussion on traditional and modern methods that can be used to prevent or deter animal presence in certain areas of concern may be useful. For example, some Panel members felt that a fence would be beneficial, while others felt it may be harmful and hard to maintain over time.	DDMI proposes to hold a TK Panel session in the spring 2016 to discuss wildlife monitoring and management at closure. Further discussions to advance this concept would be well suited to this meeting.	Accepted
9.5	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Sponsor or co-sponsor a contest to gather ideas from communities on how to help the caribou get strong.	Many Elders felt that community youth, in particular, may have some good or new ideas on ways to improve caribou numbers, health, spirit, etc that are facing the population. They felt that a contest may encourage people to submit their ideas for consideration.	Diavik views this suggestion as better suited for communities themselves to undertake and then share relevant results with various stakeholders.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Fish & Water

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.3	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	In future programs, document why certain fish are rejected by Elders.	It was noted that one of the participants in the 2015 AEMP TK Study rejected two fish for processing, but the reasons why were not well documented. It would be helpful to capture these reasons in future studies.	Diavik agrees that the reasons why fish are selected or rejected should both be documented.	Accepted
8.4	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Water testing should be done by tasting fresh water and by boiling the water, letting it set overnight and drinking it the following day (observe scum and clarity).	Panel members recognized that not all people may drink tea, and that it would be better to use plain water to taste the lake water quality. In this way, the water is natural and any impurities would be easier to identify. However, the benefit of also boiling the water allows people to see if anything with the water changes after being heated, e.g., has a layer of scum, or materials settle out. It was agreed that people could make tea with the lake water on their own, if that was important to them.	Diavik supports the water quality testing method that is preferred by TK holders. Any change to methods used should be communicated and documented during the planning phase of the 2018 AEMP TK Study.	Accepted
8.5	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Set fish nets on both sides of the island (north and south).	Panel members felt that it is important to capture fish on both sides of East Island and closer to the mine itself. They would like to plan ahead for this for the next AEMP TK Study in 2018.	Nets can be set in a variety of locations, and Diavik supports the idea of determining where best to set nets during the planning phase of the 2018 AEMP TK Study. However, weather conditions may limit the ability to access certain areas as safety rules for site restrict boat travel if winds exceed 15 knots.	Accepted
8.6	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Ensure two Elders and two youth from each group attend future camps and meetings.	Panel members expressed that having young people participate in the AEMP TK Study, meetings and monitoring is critical for effective monitoring in the future. Having two young people from each community present increases their comfort level, as many are shy, and helps to make sure that the Elders are properly cared for. Members recognized that they could help support this process by talking with their organizations and encouraging them to find youth to attend.	It would be very beneficial to have TK Panel members assist in identifying and recruiting youth to participate in TK programs. The TK camp footprint is small and space is limited to what can be supported with existing beds/tents and cooking facilities. Most community organizations can send 4 people to the camp and this is usually 2 Elders, 1 youth and 1 interpreter. Should an interpreter not be required, Diavik would consider having 2 youth from the community attend.	Accepted

TK Panel Recommendations Sessions #1 to 12: Fish & Water

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.7	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Sample fish and water from the Narrows (In both LDG and LDS).	Concerns over future development of the Jay Pipe in Lac du Sauvage was a driver for Panel members to recommend sampling water and fish from the area around the Narrows (between LDS and LDG) as part of the AEMP TK Study.	The current area identified for fishing in LDG includes the area of the lake below the Narrows. For safety reasons, Diavik would like to avoid taking boats up the Narrows. Any concerns or interest in sampling LDS in relation to the Jay Pipe should be directed to Ekati.	Not Accepted
8.8	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Consider additional water sampling locations from different areas.	At closure, or with future development, community members may want to add water sample locations to the AEMP TK program.	Water samples can be taken in a variety of locations, and Diavik supports the idea of determining where best to obtain samples during the planning phase of the 2018 AEMP TK Study. However, weather conditions may limit the ability to access certain areas as safety rules for site restrict boat travel if winds exceed 15 knots.	Accepted
8.10	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Focus water quality monitoring on the NCRP.	The NCRP has been identified as one of the main concerns of Panel members who feel that climate change may affect its integrity and release contaminated water into the environment. As such, Panel members want to make sure that water from the pile is monitored for quality.	Many stakeholders are interested in the performance and integrity of the rock pile, as well as the quality of water seeping from the pile. As such, long-term water monitoring plans would be incorporated into the development of the post-closure monitoring program.	Accepted
8.12	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Monitor fish spawning areas closely, especially in the SE part of island (i.e. area just south of the pits).	Panel members are concerned about fish spawning in potentially contaminated areas, so they want to know if fish are using the areas close to the mine after closure.	Community members could monitor spawning areas at a variety of locations in LDG, and Diavik supports the idea of determining where best to monitor during the planning phase of post-closure TK studies.	Accepted

TK Panel Recommendations Sessions #1 to 12: Fish & Water

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.13	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Monitor and test water in pits and around East Island regularly.	Panel members were concerned with pit water quality once the pits were refilled with water because of potential contaminants. It is recommended to sample the water frequently and watch for wildlife using the water (drinking, swimming). If wildlife avoid water, there could be a concern about the water quality. Similarly, other areas around the mine site should also be monitored for water quality where water can run off into Lac de Gras.	Diavik currently monitors water quality around East Island and this practice would be incorporated into a post-closure monitoring program, along with open pit water quality. Incorporating a TK perspective of observing wildlife using the water is supported as part of a post-closure monitoring program.	Accepted
8.14	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Regularly stock on-island pond water with bugs to improve water quality.	Many Panel members identified that bugs in the water and on the bottom of lakes are beneficial to fish and the environment. Their continued presence is also an indicator of good water quality. Adding bugs to areas that were previously disturbed could help to reclaim those areas.	Diavik is interested in this idea and plans to explore the feasibility of incorporating this method into closure plans.??	Not Accepted
8.15	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Test water scientifically and not by tasting.	Panel members are uncomfortable with the idea of tasting water, as a way to test water quality, for water that is on the mine site. Panel members noted that scientific sampling is important for water testing, as it tests for things that cannot be seen or tasted. They also noted that visual inspections of the water (in the same areas that science samples would be taken) would be important for community members after closure.	Diavik currently monitors water quality around East Island and this practice would be incorporated into a post-closure monitoring program. Incorporating a TK perspective of visual observations of the water is supported as part of a post-closure monitoring program. It is Diavik's hope that community members will be the ones taking scientific samples and observing the water themselves, at the same time.	Accepted
8.16	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Regularly measure heavy metals all around island.	Panel members were concerned with water quality around the island, largely in respect to animals consuming it and water from the island entering the lake. Metals can be a concern because of equipment and infrastructure that were used for the mine.	Diavik currently monitors metal concentrations in water quality around East Island and this practice would be incorporated into a post-closure monitoring program.	Accepted

TK Panel Recommendations Sessions #1 to 12: Fish & Water

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.17	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Monitor water in late May and early June as these are critical times (i.e. melt).	Panel members know from experience that spring thaw produces the greatest amount of water that would runoff the island and into the lake over a short period of time. The volume can also pick up a lot of dirt and material from the ground and transport it to the lake. Therefore it is important to monitor water quality during this time, in addition to regular sampling.	Diavik currently monitors water quality around East Island, including during freshet, and this practice would be incorporated into a post-closure monitoring program. Incorporating a TK perspective of visual observations of the water is also supported during this time of year. It is Diavik's hope that community members will be the ones taking scientific samples and observing the water themselves.	Accepted
8.18	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Regularly measure water quality in all bays, drainage and run-off.	Panel members know from experience that water runs off the island and into the lake, taking many materials from the land along with it. Therefore it is important to monitor water quality in runoff and in areas that receive the runoff.	Diavik currently monitors water quality around East Island and in Lac de Gras, and this practice would be incorporated into a post-closure monitoring program.	Accepted
8.19	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Annually check for algae growth around shorelines as too much can be an indicator that there is less oxygen for the fish.	Panel members have experience with lakes in their home regions that have changed over the years. Many noted how algae and moss can be helpful in cleaning water, but too much build up of algae, especially along shorelines, may be an indicator that the water is not of good quality for fish. This is something that community members can help to identify through visual inspections of shoreline areas near the mine.	Diavik currently monitors water quality around East Island and in Lac de Gras, and this practice would be incorporated into a post-closure monitoring program. Incorporating a TK perspective of visual observations for algae in the water is also supported. It is Diavik's hope that community members will be the ones taking scientific samples and observing the water themselves.	Accepted

TK Panel Recommendations Sessions #1 to 12: Fish & Water

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
11.4	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	When considering filling the underground and pit with PK, Diavik is interesting in learning from the Panel how far from the surface of the water the PK should be filled, if that option is preferred and approved. The Panel discussed at length what this level might be and did not come to a consensus (6 to 100m).	Diavik agrees	Not Accepted
11.5	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	The Panel would like additional scientific research to see what the effects of PK (ingestion) might be on fish specific to Lac de Gras.	Panelists were particularly interested in knowing whether PK would affect fish and water, and expressed significant concern that fish might ingest PK or that PK may affect fish gills. Diavik presented results from the PK toxicology study that found that PK does not contaminate water or chemically harm fish.	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.	Accepted
11.6	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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).	When considering filling the underground and pit with PK, Diavik is interested in learning from the Panel how far from the surface of the water the PK should be filled, if that option is preferred and approved. The Panel discussed at length what this level might be and did not come to a consensus (6 to 100m).	Diavik's water license amendment to permit PK to mine workings has been referred to Environmental Assessment. A decision by the review board is expected by the fall of 2019. If approved, Diavik has committed to a water cover greater than 50m.	Accepted
12.9	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.		Baseline information existing. Slimy sculpin testing just outside N. Inlet dike every 3 years - done through AEMP. Based on modelling, do not expect impacts outside of pit lakes.	Accepted

TK Panel Recommendations Sessions #1 to 12: Fish & Water

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
12.11	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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. 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.	Challenges associated with collecting test fish in pit lakes.	Not Accepted
12.12	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.		Agreed	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.0	A Way of Life, 25 October 2012, pg. 9	Ensure that any caribou trails are clean and clear of debris.	TK provides insights into caribou needs. Caribou are really sensitive about their feet and knowledge passed down over generations tells that it is important to make sure that any areas where caribou travel are clean so that their feet are well taken care of. From Renewing Our Landscape: Caribou feet are really soft so they prefer to travel on sand and eskers, and sometimes hills. Sand is really important. Soft sand can be used to cover jagged rock at water crossings so that caribou can get into and out of the water safely.	Additional information on what is considered 'clean' is needed in order for Diavik to implement such a recommendation when designing caribou trails for post-closure use. e.g. TK Panel members have discussed the possibility of using fine PK as sand along wildlife access areas (Session 6), but Diavik would need to evaluate the properties of PK in relation to animal health before determining if its use is suitable for caribou trails.	Accepted
1.17	A Way of Life, 25 October 2012, pg. 17	A monitoring program that includes (western) science and TK/IQ is the most practical and preferred approach.	Provide an opportunity to continue practicing and integrating different ways of knowing and learning from each other. The mine's presence makes it necessary to develop cross-cultural ways of learning and sharing knowledge. Need to be creative in collaborating with Diavik. A successful program requires good communication and strong relationships.	The TK/IQ Panel is Diavik's preferred method to consider and develop closure monitoring options that incorporate science and TK/IQ. Work to develop trust and communication protocols with the Panel and communities is a part of this approach.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.18	A Way of Life, 25 October 2012, pg. 24	Work with Aboriginal knowledge holders to investigate and experiment with the possible use of deflection zones (e.g. 20 miles away from the mine and another closer to the mine), based on knowledge of migration routes that may help to guide caribou movements away from the mine.	Humans do not control nature, but must take steps to provide for caribou needs when nature has been disrupted. There is no way that you can keep an animal out of its migrating route. Its either going north or south, and they follow different routes. They will go over anything in their path. Traditionally, spruce and other markers such as inuksuit have been used to direct caribou to certain areas. These could be used to try and reduce risks and stress on animals. If they are in a straight line, caribou will follow them and they won't go in between the markers, even if there is a large gap. From Renewing Our Landscape: East Island is a shelter for young and injured caribou; they get to it by swimming along the channel (on the north side of the island). South of the lake is jagged rock where caribou could get injured. The east side of the lake is better; there is a sandbar, muskeg and rocks and its good for caribou migration.	Current mine activity levels appear to be sufficient to deter caribou from visiting East Island. Methods such as this may be effective as the mine transitions to closure and post-closure, depending on wildlife use preferences identified for mine site areas by community members.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.19	A Way of Life, 25 Oct 2012, pg. 25; Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.6	Ensure that TK/IQ knowledge that has been shared in the past is incorporated into future planning, specifically in relation to caribou and vegetation.	Early work that was done for Diavik's Environmental Impact Statement and other planning processes included knowledge about caribou that should be reviewed and used. Include a review of Elder site visits and best practices from the Golder Associates literature review.	Diavik is interested in incorporating historical information on caribou and other areas of the environment from the companies documents, as well as external sources such as the West Kitikmeot Slave Study and community TK archives, particularly with respect to mine closure planning. The literature review that was completed by Golder Associates was a first step in identifying the type of information that is available to the public.	Accepted
2.5	Renewing Our Landscape, 7 December 2012, pg. 35	Seasonality of monitoring must be taken into consideration when planning for post-closure monitoring.	Land, water and air are the three key areas of concern for Aboriginal people. TK monitoring seasons are: winter for hare, foxes, wolverine, etc; spring for caribou; summer for fish and water; fall for berries in muskeg and plants.	Diavik is interested in further exploring ideas for closure monitoring with communities. Seasonality should be accounted for in these discussions.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
3.4	Renewing Our Landscape, 7 December 2012, Appendix D, pg.14; Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.5	Leave the airstrip intact with one or two small buildings nearby; do not revegetate it.	Excellent infrastructure for the north as an emergency landing strip for aircraft. A small building can provide emergency shelter, or shelter for those using the area for hunting or fishing.	Maintenance and liability issues are the key challenges with leaving the airstrip and/or a small building after closure. Diavik would be open to Transport Canada or another party acquiring this airstrip. Alternatively, Diavik would consider leaving the airstrip intact (no reclamation, no on-going maintenance/liability), were this to be preferred by communities & approved by the Board.	Accepted
4.1.2	Checking Nets, 23-25 October 2012, pg.18; Closure/Reclamation and Landscape History Interim Report, 23-25 October 2012, pg.8	Diavik should carry out and make public a review of its use of TK/IQ in its environmental plans and programs. This review should document the successes and lessons learned from TK/IQ studies, and what changes or improvements in adaptive management can be attributed to TK/IQ.	Key concerns in relation to this recommendation are whether Diavik is doing what they said they would do, and community members are concerned with repeating themselves over the years without seeing any results from their suggestions. Community members feel that Diavik needs to demonstrate their use of TK, in respect to the Elders.	DDMI had a report prepared by Golder Associates titled "Literature Review of Traditional Knowledge Related to the Resource Sector - July 2011". Beyond this, DDMI does not feel that it is necessary to produce a separate report that documents where TK/IQ has been incorporated into its past processes. Many of these initiatives were established during the early years of the mine and it would be difficult to effectively represent the knowledge and provide lessons learned.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
5.4	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.5	Smooth slopes on the sides of roads and the airstrip so that they are less steep, and remove large boulders from these areas. Scarify engineered surfaces such as the camp areas, plant site, roads and laydowns. Revegetate to support biodiversity.	Consider revegetating the sides of the airstrip and roads so that they can filter runoff, but avoid revegetating the surfaces. Keep all roads to the pits and airstrip intact to allow access for monitoring. Sides of old roads and the airstrip should be made less steep and revegetated to filter runoff. They should be relatively smooth and free of boulders so that wildlife can move over the areas safely.	The current closure plan supports this recommendation and includes contouring of roads, restoration of drainage, surface scarification and revegetation. Some travel routes will be planned, connecting key areas of the old mine footprint for human and wildlife travel.	Accepted
5.5	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.5	Remove equipment, unused buildings, pipes, toxic materials and non-biodegradable items from the island.	Panel members refer to traditional practices of always leaving a clean campsite and respecting the land for your use. Buildings, equipment and materials no longer needed should be redistributed to Aboriginal communities if requested.	An approved landfill exists at Diavik (within the rock pile) and will continue to be used for non-hazardous waste materials. Hazardous materials are backhauled off site on the winter road. An evaluation of building or equipment condition would need to be conducted in advance of providing any materials to communities; if the materials were deemed suitable, Diavik would be interested in communities acquiring such items.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.1	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Do not disturb new areas and protect natural vegetation areas that exist on the Island (with the exception of planned development areas for A21, the rock pile for A21 and any future closure work that involves covering natural vegetation in order to flatten slopes for safe wildlife passage).	<p>Panel members were able to visit areas of natural vegetation and most were happy with how these looked, and recognized the importance of preserving these, where possible. Comments: "I was looking for dust on berries and willows, but I saw that they were pretty clean; seeing it first hand helps." "The berries and leaves in the undisturbed areas look the same as before." "I feel peaceful and good after going out on site; I saw a fox and wolf and ground squirrels." " There were caribou trails at the south side of the airstrip; it looks good. Its good to see the land looks healthy."</p> <p>Panel members also recognized that it is important to balance preservation of natural vegetation with making sure that wildlife can pass through the site safely. For example, participants felt it more important to widen the base of any future rockpile associated with the A21 development, in order for the pile to be lower and less steep for wildlife movement.</p>	DDMI understands and respects community interests in protecting areas of natural vegetation that remain on the mine site property while recognizing where it may be beneficial to lose some natural areas in order to promote the safe passage of wildlife through the mine property. The Panel has provided clear guidance on where and when it is appropriate to cover natural vegetation and this aligns well with DDMI's closure plan.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.2	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Study vegetation east and north of the Island to understand good caribou habitat.	Participants felt that tundra vegetation is very powerful; like there is something underneath that is helping it. They noted the importance of moisture for growth. Many participants felt that the environment is powerful, that nature will heal itself and that vegetation at the mine site will grow again on its own. Others felt that what has happened on East Island is not natural, so it cannot be left to Nature alone to heal; Nature needs help in this case. Still others noted that climate change will result in differences; e.g. willows are taller now at places where Panel members used to camp and different species are coming to the north (which Elders predicted in the past). Some participants thought that vegetation on the East Island is different from the mainland (and that this could be from human activity, introduced species or climate change).	Since 2010, DDMI has incorporated a TK component to the lichen study that is conducted on East Island and the mainland. The main focus of the TK component of this study is to identify plants and habitat areas that are used by caribou in various locations on the tundra, up to 40 km (25 mi) away from the mine. This study is done every 3 years and is next planned for 2016.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.4	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Test both natural vegetation and seeded plants (re-vegetation plots) for toxicity.	Vegetation itself was not seen as a concern; the worry is about hazards and concerns for caribou if they eat the plants. Panel members want to be sure that vegetation on the mine site is safe to eat and similar to that farther away on the mainland. Many participants noted that wildlife smell food before they eat it; they may roam around but not eat. Caribou are smart and this is an indication that they know when plants are not healthy for them.	This is planned as part of the re-vegetation study being conducted with the University of Alberta (U of A). Field samples to test for plant toxicity were planned for summer 2015, but the amount of plant material available to sample was too low. U of A plans to conduct greenhouse studies using the same materials and native plants to test for toxicity in the short term, as they can grow plants quicker under controlled conditions. They will then wait until the plants in the plots at the mine are large enough to sample and test as well, so that we have results from both the lab and field.	Accepted
7.6	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Use fine crushed rock on passage-ways to protect the feet of the caribou (similar to what is on the sides of the airstrip right now – August 2014).	Participants noted that caribou are the most important species to look after and that they must be respected. From 1.0 (above): Caribou are really sensitive about their feet and knowledge passed down over generations tells that it is important to make sure that any areas where caribou travel are clean so that their feet are well taken care of.	Diavik will evaluate options for crush size on caribou passage ways. A very fine crush, such as that at the airstrip, may not be possible. However, participants noted that the test pile slope material was also considered safe for passage. DDMI will use the surface of the test pile slope to guide final surface material design for caribou passage ways.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.9	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Create slopes on the sides of roads similar to that on the test pile to support safe travel for animals, and use crushed rock (like at the airstrip) on the surface.	All Panel members showed a clear preference for road reclamation that included a relatively flat top with downward sloping sides at a low angle. The material preferred for use in reclaiming such areas is crushed gravel. It was recognized that natural revegetation may be lost by pushing out the sides of roads in order to ease the slope, but this was seen as an overall positive because it allowed safe passage for wildlife.	The Panel's preferred design for roads at closure is supported. Preference for top surface is to be similar to test piles rather than placing additional crushed gravel.	Accepted
7.10	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Transplant a variety of natural 'tundra mats' and compare them to seeded test plots; this will help natural recovery by maintaining the biodiversity of the area.	The re-vegetation plots were visited and Panel members found it interesting to see the different plants that were growing there (e.g. grasses) when compared to the tundra beside the plots. Many also felt that there seemed to be little vegetation given that it had been 10 years. Researchers explained that growing grass allows the soil to build (nutrients, moisture, etc.) and is the first phase in helping other natural tundra plants to then establish. Panel members felt that there could be benefit in taking natural 'tundra mats' from areas being impacted by mine development (e.g. future A21 rock pile area) and re-planting them in re-vegetation areas.	Diavik initially planned to try this approach in the re-vegetation plots established in 2004. However, this approach requires access to an area planned to be disturbed (to take "tundra mats") while at the same time having areas available that require re-vegetation. This situation has not been identified. Currently DDMI does not see an opportunity for this approach.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.11	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Use the natural tundra mat to guide plant selection to ensure natural balance.	Similar to recommendation 7.2, it is seen as beneficial to "learn from Nature's quilt" and study the plants that grow together in various areas.	The focus for re-vegetation studies to date is to utilize native plants from 'nature's quilt'. The goal for re-vegetation is to establish primary growth (such as grasses) that help to grow soil nutrients, which then allows plants from the surrounding tundra to move in and establish. In this way, Diavik helps to promote growth while allowing for natural processes and plants to occur over time.	Accepted
7.12	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	When using fertilizers, use natural local fertilizers like droppings from local animals. The question of treated human sewage needs to be revisited.	Participants noted how caribou droppings have often resulted in better plant growth at traditional camp sites or other areas of the tundra. It was felt that use of such natural fertilizers may be beneficial in the re-vegetation work that Diavik will be doing. Participants were not sure how they felt about using treated human sewage as a fertilizer - a product that is readily available on site and has been used with some success in the re-vegetation test plots. Panel members would like to learn more about what is in the treated sewage before deciding on whether this is an acceptable fertilizer.	Diavik is interested in using treated human sewage waste as fertilizer, given that it is available on site and considered safe to use from a health perspective. The plan is only to use this material as fertilizer during the first couple of years after closure, as it promotes plant growth in the early stages of use and then loses its effectiveness over time. Local animal droppings would only be considered long-term, natural fertilizer and its use would not be a planned activity.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.15	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	The re-vegetation maps developed in this session are not yet complete and more time needs to be spent discussing and finalizing these.	Participants worked hard to classify various areas of the site in terms of zones for which they would prefer to 1) deter wildlife use, 2) encourage plant growth or 3) engineer areas of safe passage or use for wildlife. The map developed by the women during a break out session was the most supported approach to date, but Panel members felt that this requires more discussion at both the Panel and the community levels.	Diavik is grateful for the maps developed at this session and views these as a useful tool for discussions with community members, community organizations, regulators and the TK Panel.	Accepted
7.16	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	The TK Panel would like to use maps that show the TK of traditional caribou migration routes as the basis for evaluating the “big picture” and identifying areas for sloping (modification) on East Island at closure.	Panel members recognized that it would be helpful to have access to some of the early work produced prior to mine development that identified the traditional trails used by caribou and identified by Elders during the Environmental Assessment. Participants felt that it would be useful to compile that information onto a map that could then be marked up to show the 3 types of zones to be considered for animal use of the mine area after closure (deter wildlife use, encourage plant growth or engineer areas of safe passage or use for wildlife).	DDMI proposes to hold a TK Panel session in the spring of 2016 to discuss wildlife monitoring and management at closure. Further discussions to advance this concept would be well suited to this meeting.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.1	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Maintain current TK camp site until at least 2018	Community members prefer a more traditional approach to spending time on the land. The connection to the land that can be felt at the camp is stronger than what people experience at the mine site, given all the rules and limited ability to be outside. The connection to the land supports each AEMP TK Study participant and lends to a feeling of family and a willingness to share knowledge, which contributes to the success of the program.	DDMI understands and respects community members' desire to continue to hold the AEMP TK Study at the TK camp site. DDMI agrees that the camp provides a more authentic experience and results in better information being shared. The current lease for the TK Camp area expires in May 2017. DDMI plans to renew the lease and currently supports holding the 2018 AEMP TK Study at the camp. DDMI would then re-evaluate plans for the TK camp after the 2018 session.	Accepted
8.2	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Consider options to donate camp facilities to people traveling to LdG after the mine closes.	TK Panel members are very interested in continuing to monitor the water and fish in the Lac de Gras area after the mine is closed. Leaving the camp in place would provide them with a base from which to do this. Communities would appreciate the camp facilities and supplies being "sold" (\$1) or donated to a community organization or coordinating body that would oversee such work. Alternatively, if it is not possible to keep the camp intact, Daivik should consider leaving a tent frame in place for travellers that may need emergency shelter.	DDMI prefers not to leave the camp facilities in their current location, as the preference is to close the camp, reclaim the land and relinquish the lease. DDMI would consider 'selling' or donating the camp equipment to community organizations or a coordinating body, pending legal review, for their own use. The mine site itself is only a short distance away and is likely to have one or two buildings left behind after closure that could be used for emergency shelter.	Accepted

TK Panel Recommendations Sessions #1 to 12: Landscape & Re-Vegetation

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.10	Watching/Monitoring and the WRSA-SCRIP, Session #10, 14-18 September 2017	<p>Consider alternative uses for A21 material:</p> <ul style="list-style-type: none"> - Cover the Processed Kimberlite Containment (PKC) area after removing slimes. - Assuming the slimes are gone, slope the south face/wall between the NCRP and the north end of the PKC to allow for caribou movement. - Extend the west end of the NCRP and slope it for caribou. - Cover areas that may have been contaminated after clean-up like the hydro-carbon containment area. - Smooth edges of roads, airport and building areas 	The Panel applies their traditional approach of respecting everything nature provides and being resourceful. The 'waste' rock supplied by mining activities in A21 should be used wherever possible, rather than simply being discarded into a pile on the tundra. In the Panel's view, if closure plans for the PKC area change (e.g. dry vs. pond), the suggestions relating to access to this area may also change.	Diavik is planning to use A21 material for closure, including some of the items identified by the Panel. Details for each area have yet to be finalized, and we commit to continue updating and discussing this with the Panel as closure plans progress.	Accepted

TK Panel Recommendations Sessions #1 to 12: North Inlet

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.14	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Relating to re-vegetation, the North Inlet requires further discussion in terms of it being a no go zone, replanting zone or encouraging zone for wildlife.	The men and women had separate break out sessions to develop their ideas on how best to manage various areas of the mine after closure. Many of their ideas were similar, but the suggestions for the North Inlet differed greatly. Panel members recognized that more information is needed from Diavik relating to the water quality and closure plan for the North Inlet pond, before a decision can be made on vegetation and wildlife access.	Diavik is grateful for the maps developed at this session and views these as a useful tool for discussions with community members, community organizations, regulators and the TK Panel. Further information relating to the North Inlet water quality and closure plan will be planned for a future TK Panel session.	Accepted
9.24	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	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.	The Panel members would prefer that areas with the potential for contaminating Lac de Gras waters or fish (e.g. North Inlet) remain separate from the rest of the lake. Similarly, the dam around the PKC should remain in tact unless the area would not pose a risk of contaminating the land or animals surrounding it. In order for the Panel to recommend or support plans to reconnect these areas back to Lac de Gras or East Island, Diavik would need to prove that the water, lake bottom and closure surface is clean and safe.	Diavik understands the Panel's concerns. Currently-approved closure plans would see the open pit/ underground areas and the North Inlet reconnected to Lac de Gras. Diavik has conducted several studies to determine if there are risks (potential for contamination) to the environment, should they be reconnected to LDG. Current plans also provide for multiple years of monitoring prior to possibly reconnecting these areas. Closure plans for the PKC include breaches in the dam in certain areas. It is Diavik's preference from a liability perspective to not retain regulated containment structures on the site.	Accepted

TK Panel Recommendations Sessions #1 to 12: Open Pits

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.9	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Do not breach dikes until the TK Panel is satisfied with the water quality through visual inspection and reviewing results from scientific analysis.	Panel members have repeatedly expressed the importance of 'seeing with their own eyes'. It is important to continue to involve Panel members in key decisions during the closure phase of the mine. One of the most important phases to supporting this process will be prior to breaching the dikes. If Panel members are satisfied with what they see and learn, they can support reconnecting the dike areas to Lac de Gras.	Continued engagement of the TK Panel through site visits during closure is Diavik's preferred approach to sharing plans and progress, and continuing to build the Panel's knowledge and expertise of closure activities.	Accepted
8.20	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Leave the land between the pits and the dikes as it is for natural regrowth when flooding.	Much of the natural lake beds that are exposed inside the dike have been undisturbed for many years and have had substantial growth of terrestrial (land) plants. Panel members felt that these plants should be left in place. While they will likely die once they are under water, they will help to establish other water plants and provide food for bugs that live in the water.	The plant growth that has occurred in these areas is something that was not anticipated during the environmental assessment. Diavik is in agreement with the Panel on their recommended approach, but recognizes that other stakeholders, such as DFO, will be interested in considering the best option for these areas at closure.	Accepted
8.21	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Leave dikes as they are (i.e. do not modify the slope or current construction).	Panel members had much discussion over the dikes. In the end, many felt that the dikes will act as islands and offer protection from wind and waves inside (good for small and resting fish). The outside of the dikes would be perfect for bigger fish and other fish to swim along, and many Panel members stated that this is where they would set nets.	This recommendation aligns with Diavik's current closure plans. The only changes to the dikes would be the areas that are breached to reconnect the pits back to Lac de Gras.	Accepted

TK Panel Recommendations Sessions #1 to 12: Open Pits

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.22	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Vary depths of built reefs.	Keeping some parts of the reef deeper and some shallow allows for current to run through the area. Keeping the reefs under water will allow the water to freeze and the ice to grow really thick for safe travel. Building islands that extend out of the water was considered by the Panel at one point, but they ultimately preferred keeping the reefs under water, given that the dikes will become islands once they are breached.	This recommendation aligns with Diavik's current closure plans.	Not Accepted
8.23	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Don't build, or minimize building reefs on previous lake bottom areas inside the dike area (i.e. protect undisturbed and naturally vegetated areas).	Similar to the feedback received during the revegetation session (#7), Panel members were interested in preserving areas inside the dike that had not been disturbed by mining activities. Reef construction should be focussed on areas within the dike where disturbance has already occurred.	This recommendation aligns with Diavik's current closure plans.	Accepted
8.24	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Ensure good fish habitat for rearing, feeding and resting on reefs inside dike.	A combination of sand and gravel are the preferred materials to use for building reefs and new areas of lake bed, as this is what was there in the beginning (i.e. before mining). Fish that are just born like shallow areas with gravel and a bit of sand or till (original lake bottom sediments). Little fish don't like too much sand, though, and minnows will often die in these types of areas. There was a lot of debate about what type of habitat to develop inside the dikes, but Panel members ultimately felt that there was enough good spawning habitat elsewhere in Lac de Gras, so the focus for this area should be shelter for feeding and resting.	This recommendation aligns with Diavik's current closure plans.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Open Pits

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.25	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Stock water in open pits with bugs to improve water quality.	Many Panel members identified that bugs in the water and on the lake bottom are beneficial to fish and the environment. Their continued presence is also an indicator of good water quality. Adding bugs to areas that were previously disturbed could help to reclaim those areas.	Diavik is interested in this idea and plans to explore the feasibility of incorporating this method into closure plans.??	Not Accepted
8.26	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Provide opportunity for the TK Panel to view the present shoreline when snow-free to consider further recommendations (in spring).	Panel members have repeatedly expressed the importance of 'seeing with their own eyes'. This Panel session was held in December in Yellowknife, so many members were basing their discussions on memory and hadn't closely looked at the shoreline areas of the pits in the past. In order to confirm their preferences, Panel members would like to visit the shoreline areas within the dike when there is no snow on the ground.	A visit to these areas is planned for May 2016, during TK Panel Session 9.	Accepted
8.27	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Break-up the 1 km cliff on pit A418 with slopes (to make it safe for caribou).	There was a concern that a cliff feature at the edge of a lake could result in caribou or other animals being injured or killed, especially if it was used by predators as a hunting technique. Additionally, the length of the existing cliff would mean that caribou would have to swim up to 1 km to get out of the water. As such, it was felt that adding slopes at regular intervals would be helpful for animals to get in/out of the water safely.	Diavik plans to accommodate this request when finalizing closure designs for the A418 pit. A visit to this area is planned for May 2016, during TK Panel Session 9, and it would be helpful to have the TK Panel confirm that this recommendation still holds after seeing the area with their own eyes.	Accepted

TK Panel Recommendations Sessions #1 to 12: Open Pits

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.28	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Leave current roads into the pits (e.g. A154).	Panel members found it acceptable to leave the ramps (that are currently used for vehicles to enter the pits) in place at closure, as they could provide safe access for wildlife into and out of the lake.	This recommendation aligns with Diavik's current closure plans.	Accepted
9.25	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	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.	As with many other aspects of the site, TK Panel members find it helpful to see things with their own eyes in order to better understand an area and the related closure considerations for that area.	DDMI understands the Panel's interest in viewing the open pits and underground to better understand the closure objectives for this area. A visit underground is very time consuming with many safety considerations and special equipment; not all Panel members may be comfortable going underground. DDMI suggests that a future TK Panel session focus on the option to store PK underground and that a tour of the open pit and underground areas would be arranged for those who wish to view them, in conjunction with that session.	Accepted

TK Panel Recommendations Sessions #1 to 12: Open Pits

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
12.4	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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. 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.	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. Recent model updates indicate that if water conditions are good sooner than two years, better to breach earlier rather than later (to avoid concentration build-up).	Accepted
12.8	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	After much discussion and clarification was provided over the session, the TK Panel decided that the first phase of breaching the dikes should allow for water movement, but not fish movement particularly for pits containing PK.	Per EA measure 2, DDMI is conducting cultural use water quality criteria workshops to inform criteria for dike breaching.	Accepted

TK Panel Recommendations Sessions #1 to 12: Open Pits

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
12.10	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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. 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.	Agreed	Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.1	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 5	Cover PKC area with a combination of natural sand and soil to ensure that the PKC is not over-heating the area (and melting permafrost) and to support natural re-vegetation	Concern was expressed that the dark colour of both the coarse PK and the liner would attract more sun (heat) that would result in permafrost melt. There was also a desire to see the area revegetated as Panel members expect that caribou and other wildlife will attempt to access the area after closure.	The revised closure plan discussed in the October 2013 TK Panel session was approved by the WLWB in May 2014. The current plan includes a rock cover that would be lighter in colour and serve the same purpose as the sand and soil cover proposed by the TK/IQ Panel. The rock cover required to contain the Processed Kimberlite and protect it against wind & water could limit opportunities for revegetation.	Accepted
6.2	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 5	If there were eskers within the PKC area, reclaim these to their original state or as close as possible	A key goal expressed by the TK Panel was to return the landscape to a more natural state.	Need to consider technical requirements that would provide stability of the dam structure after closure. This is likely to limit the ability to re-design the PKC area with features such as an esker.	Not Accepted
6.3	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 5	Re-vegetate the PKC area according to baseline traditional knowledge and science	A key goal expressed by the TK Panel was to return the landscape to a more natural state. Panel members thought that vegetation may help to stabilize the ground.	The current closure plan does not include revegetation of the PKC area. It is unlikely that vegetation would help to stabilize the ground in this area given the substrate, cover materials and permafrost development, and also in consideration of the limited root systems of sub-arctic plants. Lichen development on rock/ boulders may develop over time.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.4	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 5	Create wildlife habitat and stabilize ground with transplanted willow	TK/IQ Panel members first leaned toward deterring animals from using this area after closure, but the Panel came to realize through their discussions that caribou and other wildlife will attempt to access the area after closure. For this reason, the vision of the Panel for this area shifted to recreating habitat similar to what was present before the mine was constructed. A key concern that Diavik noted was the instability of the fine PK 'flatlands' or 'beaches' that are contained inside the PKC dam.	The current closure plan does not include revegetation of the PKC area. It is unlikely that vegetation would help to stabilize the ground in this area. Diavik would need to explore possible options and their associated risks if revegetation of the PKC was to be considered.	Not Accepted
6.5	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 5	Create marshy areas with moss, lichen and berries	This type of vegetation would provide a food source and safe travelways for animals. It would also resemble what the area looked like before the mine was built.	The main focus in closing the PKC is to direct PKC seepage and/or runoff water to marshy areas on the tundra that have moss cover and allow for natural filtration. It is currently preferred to keep the flatland area within the PKC dams dry and sloped toward a planned pond. This would help to stabilize the PK underneath the cover material.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.6	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 5	Removal of the slime from the mine site upon closure.	Traditional laws and stewardship of the land imply that you do not leave human-made materials behind as it is harmful to water, air or animals. The removal of slime provides a level of comfort and certainty to northern communities that is not otherwise available. This preference is based on the acknowledged problems created by leaving the slurry/slime onsite, in particular safety concerns for people and wildlife and the uncertainties associated with impacts from environmental change (e.g., a rise in temperature and associated drought, permafrost melting, earthquakes) long into the future. Further, it provides an opportunity to return the landscape to a more natural state which is a key goal expressed by the TK Panel throughout sessions to date.	Diavik understands the motivation to remove the slimes from site. However, should the material prove to be non-toxic to people and wildlife, Diavik plans to leave the slimes on site. Should the material be used or accessible to wildlife (directly or indirectly) at closure, it would be beneficial to conduct a toxicological study on the material.	Not Accepted
6.7	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 5	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).	Upon discussion, Panel members stated that should the slimes prove to be non-toxic, they would be more willing to assess on-site containment options for this material. TK holders need to see for themselves that something is not harmful to the environment. Participants would want to be confident in the results of the scientific testing.	Should the material prove to be non-toxic to people and wildlife, Diavik plans to leave the slimes on site and determine the preferred method for containment that allows for safe use or passage of wildlife in the PKC area.	Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.8	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Return the lake and shoreline to their natural states, as much as possible (e.g. gradual slope)	This approach would create safe access for wildlife, as it is assumed that wildlife will try to use this area after closure.	It is likely that the shoreline of any reclaimed pond will differ from a natural pond, but it may be possible to recreate some elements of interest to communities.	Accepted
6.9	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Ensure that the shoreline (of the PKC lake) is stable and that rocks are of the correct size to be safe for wildlife, especially caribou.	This approach would create safe access for wildlife, as it is assumed that wildlife will try to use this area after closure.	Another closure goal for Diavik is to have land areas that are physically stable and safe for people, wildlife and aquatic life.	Not Accepted
6.10	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Line the lake bottom with granite, gravel and rocks and other natural materials that were there before	Create a more natural and stable lake bottom that would be safe for caribou use during the warm months.	One of Diavik's closure goals is to create a final landscape guided by pre-development conditions & TK. Consideration of materials available and suitable for use are evaluated as part of the closure planning process.	Not Accepted
6.11	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Re-vegetate the lake with water plants of this area	Such plants contribute to biodiversity as they are a food source for other fish and animals. Plants feed fish but may also clean the water that wildlife may to drink and birds are likely to land on.	Current closure plans do not include revegetating lakes with water plants. Because the water pond within the PKC would not be stocked with fish (see below), efforts would also not be made to revegetate lakes with water plants. DDMI prefers to construct this lake in a manner that would not attract wildlife or promote its use.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.12	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Re-stock lake with fish and bugs	The desire of Panel members is to recreate pre-mine conditions. The limitations of water movement after closure were discussed in relation to elevation changes in this area; historic water flow patterns between Lac de Gras and the PKC area that would be necessary to support fish and bug life would be incredibly difficult to achieve.	Current closure plans do not include re-stocking fish and bugs in East Island lakes, and this includes the lake within the PKC area. Water flow patterns that would be similar to historic conditions and possibly allow for fish and bug life in the PKC pond are not planned for this area. As discussed, elevation changes from mine development would prevent this from occurring.	Not Accepted
6.13	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Recreate small ponds along the drainage route to encourage settling and healing of the water and fish habitat	There is a strong belief expressed by the Panel that nature heals itself and that it can be disrespectful to interfere with nature, but that humans can help to create the conditions to support healing. Encouraging longer drainage paths that utilize small ponds increases the chance of having cleaner water when it reaches Lac de Gras.	Diavik agrees with this recommendation and the proposed drainage path for a pond within the PKC area flows across the tundra, and passes through 3 small ponds along the way.	Not Accepted
6.14	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Support the drainage streams to encourage fish to migrate from Lac de Gras to the reclaimed lake	The desire of Panel members is to recreate pre-mine conditions. The limitations of water movement after closure were discussed in relation to elevation changes in this area; historic water flow patterns between Lac de Gras and the PKC area that would be necessary to support fish and bug life would be incredibly difficult to achieve.	The footprint of the PKC extends close to the shoreline of Lac de Gras which could make it very difficult to reduce the slope of the dam in some key areas. The elevation difference for the PKC area at closure will be significant when compared with the original lake in that area, making it very difficult to re-establish baseline conditions. Technical considerations also need to be taken into account; the dam walls still need to contain PK material that would remain after closure.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.15	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Make the closure lake as similar to the original lake, as much as possible	The desire of Panel members is to recreate pre-mine conditions and plan for safe usage of the area by wildlife.	Material availability will be limited and Diavik prefers to use material available at the site, without disturbing new areas. It is likely that the shoreline of any reclaimed pond will differ from a natural pond, but it may be possible to identify and recreate some elements of interest to communities.	Not Accepted
6.16	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Provide sufficient travel-ways for caribou and muskox over the dam through re-sloping and topping with smaller material	This approach would create safe access for wildlife, as it is assumed that wildlife will try to use this area after closure.	The current closure plan does not include re-shaping of the PKC dams. Any proposed changes would need to be evaluated for possible risks and discussed with communities. The footprint of the PKC extends close to the shoreline of Lac de Gras which could make it very difficult to reduce the slope of the dam in some key areas. Technical considerations also need to be taken into account; the dam walls still need to safely contain PK material that would remain after closure.	Not Accepted
6.17	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Recognizing that caribou may return, provide areas of soft materials that are good for caribou feet so that they may pass over the reclaimed site	TK holders care about the comfort of animals and want to avoid creating stress for them. This approach would create safe access for wildlife, as it is assumed that wildlife will try to use this area after closure.	The current closure plan does not include cover materials that would provide access over the PKC dams. Any proposed changes would need to be evaluated for possible risks and discussed with communities.	Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.18	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Leave some areas steep to encourage snow accumulation for wolverine and other denning wildlife (e.g. wolf, bear, fox, ground squirrel, etc.)	This approach would create safe access for wildlife, as it is assumed that wildlife will try to use this area after closure.	This would be achieved with the current closure plan.	Accepted
6.19	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	Open up sections of the dam to recreate natural water flow	The desire of Panel members is to recreate pre-mine conditions. The limitations of water movement after closure were discussed in relation to elevation changes in this area; historic water flow patterns between Lac de Gras and the PKC area would be incredibly difficult to achieve.	The footprint of the PKC extends close to the shoreline of Lac de Gras which would result in a very short pathway for water to travel and heal before entering Lac de Gras. This conflicts with previous guidance to route water overland for as long as possible, and DDMI's preference is the latter. Technical considerations also need to be taken into account; the dam walls still need to safely contain PK material that would remain after closure.	Not Accepted
6.20	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	The TK Panel requests that DDMI starts to remove any new slime from site, effective immediately	The Panel felt it important to stop adding to the volume of slimes that has already accumulated on site.	DDMI is unable to immediately start removing slimes from site, as there is no alternative storage options available or permitted, nor is there an acceptable method of transport available.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
6.21	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	The TK Panel requests that DDMI provide an overview of the sixteen closure options that have been considered and the preferred five options identified (including costs). Further, the TK Panel requests that DDMI provide an overview and cost estimate to remove the slime from the mine site.	The options, reasons and costs were important for the TK/IQ Panel to understand in consideration of their own assessment.	The options were reviewed with Panel members, though cost information was not available at the time the information was presented.	Accepted
6.22	Processed Kimberlite Containment Interim Report, 24-28 October 2013, pg. 6	The TK Panel recommends that DDMI explore ways of treating and removing slurry/slime with other diamond mines in the area to make it feasible	The assumption here is that costs will be reduced by working together.	Should such measures be necessary in the future, DDMI would be willing to explore such options in cooperation with other mines.	Not Accepted
7.7	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Create barriers and other means between the rock pile and PKC to discourage animals from going into the PKC area	Diavik provided feedback to the Panel at the start of Session 7 that a number of their recommendations from Session 6 (PKC) would not be possible, so Panel members had to re-evaluate their preferred approach to managing this area after closure. Participants realized that more discussion is required to develop alternate recommendations for the PKC. However, Panel members also noted that it is important to consider having a barrier between the rock pile and PKC that would prevent or deter animals from going into the PKC area. Keeping a steep slope on the side of the rock pile that is beside the PKC was recommended by the Panel.	The Panel's preference for design that prevents or deters caribou from travelling from the (north country) rock pile to the PKC is supported. The design approach to achieve this will need to be considered, as maximum slopes required for cover placement may not be sufficient in themselves to act as a barrier to movement.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.11	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Monitor and filter two streams from the east and west sides of the PKC by Mother Nature through mosses, bogs; moss should be placed throughout the channel. In the short term, install an industrial filtering system. Monitor this water quality.	Another key concern for communities is the water quality of the PKC. Natural methods to filter water (e.g. moss) and planning for water to follow a long pathway to Lac de Gras are the Panel members preferred, long-term water treatment approaches. Recognizing that the development of moss may take time, it would be prudent to consider using an industrial filtering system to treat water flowing from the PKC once the mine closes and until such time as a natural filtering system has established. Water flowing from the PKC should be monitored scientifically for water quality.	Diavik currently monitors water quality in the PKC and this practice would be incorporated into a post-closure monitoring program. Routing options for water leaving the PKC after closure will be assessed, and DDMI agrees with the Panel that the distance it flows before entering Lac de Gras will be an important consideration. However, options may be limited in some areas, particularly on the west side. Should site-specific treatment of PKC water be required, relevant options (both industrial and natural) to achieve the required performance would be evaluated.	Not Accepted
9.8	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Place a circle of boulders around the PKC pond, in an area that is stable enough to support the weight and where they won't sink into the slimes, and around the shore of the North Inlet (refer to map).	Panel members prefer to find a way to deter caribou and other wildlife from accessing the PKC pond after closure. Panel members would prefer that the PKC pond not become a drinking water source for animals. Additionally, there is a risk of animals becoming trapped in the water, or stuck in the unstable slimes material at the edge of the pond. Man-made fences can sometimes injure wildlife or be used in predation, and require maintenance, so the preference is to use a natural way of deterring animals from accessing the pond.	Diavik is still evaluating options for closing the PKC area. The current plan includes a pond in the centre of the PKC post-closure, but other options that could omit the need for a pond are being assessed in accordance with the recommendations received from past TK Panel sessions. The TK Panel's recommendation for the use of boulders around the pond has been noted for consideration, should the preferred closure plan result in the need for a pond in the PKC. Diavik is committed to arranging a future TK Panel session to re-visit the PKC closure plans, once further information on closure options have been further evaluated.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
11.1	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	Panel members weighed the options of disposing PK into the PKC versus the pits/underground, considering the potential effects on wildlife, fish and the environment. As discussed during previous sessions, Diavik reminded the Panelists that a concern about the PKC are the slimes that form a consistency like toothpaste and can be harmful to wildlife or people that may get stuck in it owing to its physical properties.	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.	Not Accepted
11.2	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	Panel members weighed the options of disposing PK into the PKC versus the pits/underground, considering the potential effects on wildlife, fish and the environment. As discussed during previous sessions, Diavik reminded the Panelists that a concern about the PKC are the slimes that form a consistency like toothpaste and can be harmful to wildlife or people that may get stuck in it owing to its physical properties.	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.	Accepted
11.3	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	The beach materials and rough kimberlite should stay in the PKC area (i.e., anything that can support a rock cover).	Panel members weighed the options of disposing PK into the PKC versus the pits/underground, considering the potential effects on wildlife, fish and the environment.	Diavik agrees	Accepted

TK Panel Recommendations Sessions #1 to 12: Processed Kimberlite Containment (PKC) Area

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
12.1	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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 accidentally 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.	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.	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.	Not Accepted
12.2	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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.	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.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
2.2	Renewing Our Landscape, 7 December 2012, pg. 22	Do not allow water to pool on top of the rock pile	Once a small pool of water forms, it gets bigger and becomes a lake that attracts animals. Animals then start to use it. Because the Panel is concerned with the quality of water within or flowing from the pile, there is concern for the health of caribou and other wildlife.	Diavik is not planning to have a water pond on top of the rock pile at closure.	Accepted
2.3	Renewing Our Landscape, 7 December 2012, pg. 23	Have a 'moat' around the rock pile as a way of being able to contain and monitor the water that is coming out of the pile.	Relates back to the concern of water quality coming off/out of the pile. Eskers have cold water flowing out of them because of the permafrost within the esker. The same is likely to happen with the rock pile as permafrost builds up within the pile over the years.	The existing collection ponds surrounding the rock pile serve this purpose and current plans have the ponds remaining until adequate water quality has been demonstrated.	Accepted
2.6	Renewing Our Landscape, 7 December 2012, pg. 45; Appendix D, pg. 8	Some revegetation should be planned for the rock pile. Consider use of good, black soil from the tundra or other eskers in the area. Plant native shrubs such as dwarf birch and willow in the soil near the bottom and allow the remainder to revegetate naturally.	Respect for the land includes respecting natural systems - there is a reason for each plant being there. Introduced species can be harmful and quickly take over; preference is to use naturally occurring plants. Using soil from elsewhere may be acceptable because the Diavik island is a traditional place for caribou to roam and is a good feeding/resting area; another option is to use till from A21. Revegetation will take time but it is the right thing to do. Consider visiting old archaeological sites or other esker sites to view re/growth; exposure will dictate what grows where (shade, leeward, side, top).	The current closure plan does not account for revegetation on the rock pile. Harvesting soils from outside the mine footprint is not being considered. Re-vegetation priority for DDMI is still plant site, laydowns and roads.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
3.1	Renewing Our Landscape, 7 December 2012, Appendix D, pg.6; Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.4	Simulate an esker when considering the final shape of the rock pile.	Traditional stewardship means leaving things as natural as possible. Make it look as natural as possible by imitating the effects of glaciers and prevailing easterly winds on the surrounding landscape. This includes sloping the top edges so they are rounded, sloping the sides so they are less steep (similar to the test pile) and have varying levels of steepness. Place rock from the pile back into the pit. The top should be flat with berms removed so that caribou can walk safely as there would be fewer places for predators to hide; they may want to use the hill to get away from bugs. Big boulders should be removed, particularly at the bottom of the pile and on the north slope, as wildlife will likely get injured trying to walk over them. The north side should be the most gradual slope, as this will be the area for wildlife and people to access the top.	Simulating a large esker is a preferred approach to re-shaping the rock pile. Closure plans do not include placing rock back in the pit. Diavik anticipates that re-shaping efforts would eliminate the need for large boulders to be removed.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
3.2	Renewing Our Landscape, 7 December 2012, Appendix D, pg.7; Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.5	Safe wildlife access needs to be considered for all seasons when designing the final shape of the rock pile. There needs to be soft material in areas where caribou will be; consider the use of PK material for animal paths.	Prevailing winter winds (NE) will result in a smooth snow cover that drops straight down on the lee side of the pile so need to consider TK/IQ in relation to snow drifts. In summer, caribou will go on top of the pile to avoid flies; consider having something for them to eat up there. In fall, caribou will swim across to the island from the northwest, following their old migration path; consider having a caribou ramp across the pile that connects with this access point. Use waste rock to slope the pile and consider an esker 8 miles NE of Diavik as an example. Refer to comment 1.0, Landscape for further information on suitable materials for caribou feet.	A caribou 'ramp' (safe access on, off and across the pile) for the rock pile is included in the current version of the closure plan. Additional ideas on design options to provide safe access for wildlife are being discussed with communities, along with technical considerations for design and performance. Diavik would need to evaluate the properties of PK in relation to animal health before determining if its use is suitable for caribou trails.	Accepted
3.3	Renewing Our Landscape, 7 December 2012, Appendix D, pg.12 & 13	Channel water flow to prevent contaminants from reaching Lac de Gras.	Consider using geotextile to line drainage channels downstream of the pile and revegetate these areas. Snow drifts and areas of accumulation need to be considered when planning for drainage. The lake water needs to remain healthy as the people of Kugluktuk live downstream.	Closure plans for the mine consider the use of drainage paths that allow additional time for water to travel over the tundra before reaching Lac de Gras. Diavik's closure goals include land and water that is physically and chemically stable and safe for people, wildlife and aquatic life.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
5.1	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.4	Preference is to lower the height of the rock pile. However, if that is not possible, keep the rock pile height as low as possible while ensuring that contaminants within the Type II and III rock areas are contained.	The biggest concern that Panel members have is chemicals seeping from the pile into the lake or being ingested by wildlife drinking the water. While the pile is considered an eyesore and Panel members would like to see it smaller (lower) on account of wildlife concerns, participants also recognize that it is most important for the pile to function well in containing chemicals from entering the environment.	The rock pile has reached its maximum height and matches what was originally permitted for the mine, though capping materials will result in a slightly higher final elevation. Diavik's primary closure goal is to contain Type II and III rock and ensure that water quality from the rock pile seepage is safe for wildlife and humans.	Accepted
5.2	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.4	Cap the rock pile with the best materials for biodiversity based on TK and science, using nearby hills as a reference.	Many Panel members believe that nature needs a helping hand; it will heal itself, but conditions to allow re-growth need to be created. Everyone recognizes that things grow slowly in the north, but that over time the area should heal. Panel members desire to see the land as close as possible to how it looked before is the main factor in guiding recommendations. While it is acknowledged that the area will never be the same again, efforts to reclaim areas in a way that resemble natural features is preferred.	Material availability will be an important aspect of closure planning. Diavik's preference is to use materials available at the mine site, without having to disturb other areas. Mine rock and till will be the materials available in greatest supply and these are currently being considered for use in capping the rock pile.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
5.3	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.5	Experiment with different types of wetlands for filtering water that collects at the base of the rock pile.	Traditionally, people tried different things to solve problems and TK holders want to be involved in any new experiments. This method should be combined with current or alternate purification system(s) to treat remaining contaminants. There are opportunities for Aboriginal people to be trained to do this type of monitoring. Panel members recognize that it is not ideal to have a water treatment plant on site forever and that more natural treatment options, similar to many used in communities, are preferred in the long term.	Wetland drainage has been effective in this area in the past and that is what is currently planned for managing water from the rock pile.	Accepted
EMAB-2	Environmental Monitoring Advisory Board TK/IQ Panel Recommendations from February 2013, Letter from EMAB, 8 Oct 2013, pg.2	EMAB recommends that Diavik incorporate into its ICRP research the following question: Will vegetation on the waste rock pile increase snow trap, which will increase run off and increase the chance of leaching?	TK/IQ Panel members have highlighted considerations for snow accumulation in relation to prevailing winds, but have not discussed this in relation to vegetation on the pile.	Not supported as current closure plans for the rock pile do not include revegetation.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
EMAB-3	Environmental Monitoring Advisory Board TK/IQ Panel Recommendations from February 2013, Letter from EMAB, 8 Oct 2013, pg.2	EMAB recommends that Diavik shape rock piles in a way that directs freshet runoff away from Lac De Gras through natural wetlands in order to naturally filter the runoff.	Supports discussions of the TK/IQ Panel preferences of wetland treatment and diverting water away from Lac de Gras for as great a distance as possible.	Diavik supports this approach wherever possible but notes that runoff and seepage will eventually reach Lac de Gras. Suggest re-wording to: "...direct freshet runoff and seepage away from Lac de Gras and through seepage wetlands <i>for as long a distance as possible...</i> " Diavik has also applied this recommendation to the proposed PKC closure option.	Accepted
7.9	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Create slopes on the rock pile similar to that on the test pile to support safe travel for animals.	Panel members felt that it was not necessary to plan too much for the animals safe passage, as caribou will ultimately go where they want and will find the ramp, road or easy way. Preference was to align the path with the old migration route and to keep the slope similar to that of the test pile - as natural as possible. Boulder size and angles were also a concern. Panel members noticed some big, sharp rocks at the bottom of the north country rock pile that would need to be covered. It was seen as important to think about the slope in the winter too - how wind will deposit snow - not just when it is snow free. The berms on top of the rock pile were viewed as a barrier to caribou movement, so it would be preferred to remove them and also to remove the berm around the top of the pile.	This is very similar feedback to what community members said at a 2009 workshop relating to caribou at closure. Current closure plans, most notably for the rock pile, generally support this recommendation and the underlying reasons for the recommendation.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.30	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Ensure long term scientific monitoring of NCRP to determine if it remains frozen and stable.	The NCRP has been identified as one of the main concerns of Panel members who feel that climate change may affect its integrity and release contaminated water into the environment. As such, Panel members want to make sure that pile remains frozen in the core, as it was designed to be.	Many stakeholders are interested in the performance and integrity of the rock pile. As such, long-term monitoring plans would be incorporated into the development of the post-closure monitoring program.	Accepted
9.1	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Re-vegetate the base of the NCRP around the ponds.	While some members of the TK Panel initially hoped that the NCRP would be re-vegetated, others preferred to let nature take its course and heal itself over time. After much discussion, Panel members concluded that it would be beneficial to focus re-vegetation efforts to the areas where ponds are located at the base of the NCRP. This would help to both naturally filter water coming in to or flowing out of the ponds, as well as to possibly help the pile re-vegetate naturally over time.	Diavik has not yet finalized the closure plans for the ponds at the base of the NCRP, but the TK Panel's recommendation for these areas will be considered when developing these plans.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
9.2	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	A limited number of large boulders (e.g. 3-4) should be placed on top of the NCRP to provide some shade for caribou, create habitat for small mammals and encourage natural re-vegetation	Panel members felt that a small number of large boulders could be beneficial for caribou, without harming the chemical stability of the pile. Many members think that caribou will go up the pile, primarily to get away from bugs, so it would be good to have some shade for them. If there were only a small number, it would be unlikely that they would be used by predators, but they could create habitat for smaller mammals as well as help with natural re-vegetation by sheltering seeds and water/snow to encourage growth.	While there are no current plans to incorporate a small number of large boulders on top of the NCRP, Diavik would consider adding these if communities identified a need for these as a result of observations from a TK monitoring program, or discussions with Elders once the final landscape of the NCRP can be observed. The Final Closure Plan for the NCRP also identifies this option for future consideration.	Accepted
9.3	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Study the wind and snow accumulation on caribou ramps/trails as well as the top of the NCRP before finishing/finalizing the sloping and grading of the NCRP.	The Panel wants to be sure that the caribou/wildlife pathway that was located along a route recommended by community members will allow safe access throughout the year, including during spring conditions when the caribou are heading north. It would be beneficial to study the wind and snow accumulation along the pathways to determine if the conditions are safe for caribou or other wildlife passage in all seasons. If this is done before the pile is completely finished, the Panel feels that Diavik should be able to fix any grading or sloping issues that communities may identify.	Diavik appreciates this suggestion and hopes that the TK Panel incorporates this monitoring into a site-specific, Traditional Knowledge wildlife monitoring program for the Diavik mine.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
9.4	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Ensure a gradual slope on the top of the NCRP so that there is a slight dome down the centre.	Panel members wanted to ensure that any water or snow that may fall or collect on the top of the pile would naturally drain off of the pile. This would minimize the amount of water that could seep into the pile. The Panel considers this another way to make sure that there is long-term protection for the land and water. Once there are no more people at the site, the water and snow must be able to drain safely off the pile.	Diavik appreciates this suggestion. The Final Closure Plan and design for the North Country Rock Pile includes this feature.	Accepted
10.1	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Avoid disturbing new areas (e.g. tundra) with A21 material at the SCRP as much as possible. The proposed SCRP area is part of a major caribou migration and feeding corridor and should not be disturbed.	The TK Panel recognizes the importance of the SCRP area to caribou and would prefer that this area not be developed. However, recognizing that the SCRP location has already been approved and established, they are interested in minimizing the size (footprint and height) of the SCRP.	Diavik shares the opinion of the Panel and prefers to utilize A21 material for other purposes (i.e. NCRP closure cover), thereby reducing the overall size of the SCRP. Diavik has now obtained regulatory and financial approvals to proceed with constructing the NCRP cover. This will begin in spring 2018, and A21 rock and till will be used for the cover. Other opportunities for the use of A21 materials for closure will continue to be evaluated as the CRP progresses.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.2	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	If this area must to be used, minimize the size (i.e. volume/amount) and height of the SCRP and slope all sides like an esker so that animals can easily walk over it. We recommend the slope should be at 3:1.	The TK Panel has evaluated the covered test pile and observed the re-sloping efforts undertaken on the NCRP. The 3:1 slope on these structures has been supported for the safe movement of wildlife and the Panel is interested in applying that same design to the SCRP at closure.	While the SCRP is being constructed, side slopes will be at the angle of repose. As noted above, Diavik's preference is to minimize the size of the pile, however current closure plans do not provide for re-sloping the entire pile, as no closure cover is necessary for the SCRP. A wildlife pathway has been planned, and that would be re-sloped (3:1) and smoothed to facilitate safe movement across the pile.	Accepted
10.3	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	If the SCRP is large, designated pathways become more important and must follow caribou routes known through TK.	Recognizing that there is a possibility that the SCRP could include all the rock from A21 (i.e., if the NCRP cover is not approved) and that the sides of the SCRP may not be re-sloped, the Panel notes that designated wildlife pathways would be very important, and that they must be safe and utilize known caribou routes across the pile.	Diavik has currently planned for pathways over and across the SCRP at closure. We will work with the TK Panel and/or other community contacts as required to finalize their location prior to closure.	Accepted
10.4	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	We recommend that rock from A21 that could go to SCRP be used to cover the NCRP.	The Panel applies their traditional approach of respecting everything nature provides to mine closure planning. The 'waste' rock supplied by mining activities in A21 should be used wherever possible, rather than simply being discarded into a pile on the tundra.	Diavik is in agreement with the TK Panel and was awaiting approval on the NCRP cover from the WLWB at the time of Session 10. DDMI has since received the necessary approvals for the cover and plans to begin progressive reclamation of the NCRP, that includes using rock from A21 that would otherwise go to the SCRP, in the spring of 2018.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.5	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Drain the pond that would be covered by the SCRP before using the proposed area.	The Panel understands that the pond under the proposed SCRP is non-fish bearing and prefers to have this drained prior to filling it with rock. There were two reasons for this: one was to prevent that water flowing over the tundra to Lac de Gras and the second was to allow more room for rock to fill the area, because it would be covered anyway.	Diavik notes that this was not originally planned for the pond identified. This was a very helpful observation and recommendation that was completed during the fall of 2017.	Accepted
10.6	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Have all SCRP water tested (both science and TK) before releasing into Lac De Gras.	As noted in past TK Panel sessions, Panel members see value in both scientific and TK monitoring of water on East Island at closure. Water that would flow from the mine area to Lac de Gras should be tested at closure, similar to what is done during operations.	Diavik continues to work with the TK Panel to identify more specific locations for closure and post-closure monitoring and we agree that the drainage channel from the SCRP is important to sample. DDMI plans to establish a monitoring station in this location.	Accepted
10.7	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Use natural filtration methods in areas where water will run off the SCRP on site.	As noted in past TK Panel sessions, nature has the ability to heal and natural filtration to treat runoff water (e.g. rain, snow melt) at closure is encouraged. Runoff water from the site should be routed to travel across the tundra and naturally undergo some filtration before entering Lac de Gras.	There are no plans for infrastructure in the area downstream of the SCRP where drainage water would flow at closure. As such, the water will flow over native tundra allowing natural filtration to occur before reaching Lac de Gras. While it is not a particularly long drainage path, it will exist.	Accepted

TK Panel Recommendations Sessions #1 to 12: Rock Piles

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.8	Watching/Monitoring and the WRSA-SCRIP, Session #10, 14-18 September 2017	Diavik must plan for the same values, principles and goals held by the TK Panel for the NCRP, to the SCRIP (e.g. maintain low height, 3:1 slope for caribou).	The TK Panel has evaluated the covered test pile and observed the re-sloping efforts undertaken on the NCRP. The 3:1 slope on these structures has been supported for the safe movement of wildlife and the Panel is interested in applying that same design to the SCRIP at closure.	Diavik has now obtained the necessary approvals to be able to use A21 rock to cover the NCRP. We are also evaluating other options for using A21 rock for reclamation material as closure planning for the site continues. This would help to reduce the overall size of the SCRIP. Diavik is planning for a wildlife pathway across the SCRIP, with reduced slope angles that we anticipate to be at 3:1. However, the remainder of the pile is not currently planned to be re-sloped. The reason for this is that there is no need for a cover on the SCRIP as it contains no T3 rock.	Accepted

TK Panel Recommendations Sessions #1 to 12: Spiritual & Cultural

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
2.4	Renewing Our Landscape, 7 Dec 2012, pg. 25	Renew relationship with the area after closure.	Spiritual ceremonies to invite the spirits to return to the mine site will be required responsibilities require people to make amends to the spirits of the land for the damage created by the mine. It is important that current and future generations maintain their relationship with their homelands that surround the mine. Aboriginal harvesters will travel where the caribou go, and provided that the area is made safe and accessible for caribou, they will go there again. For this reason, Aboriginal people's connection with the land needs to be renewed and/or maintained after closure.	Diavik is open to recommendations on how best to approach this with each of the five Aboriginal Participation Agreement communities.	Accepted
4.3.1	Closure/Reclamation and Landscape History Interim Report, 23-25 October 2012, pg.6	Visit burial, archaeological and heritage resource areas close to the mine.	Provide comfort to community members that important sites have been preserved and that this historical connection still exists with the land in this area; important for youth to know the locations and stories behind these sites.	This type of activity could be incorporated into plans to renew the community's relationship with the land in this area after closure.	Accepted
4.3.2	Closure/Reclamation and Landscape History Interim Report, 23-25 October 2012, pg.6	Conduct a tobacco (or other) ceremony when the company is ready to leave the island.	Heal and reconcile the relationship with the land once all work is complete. The type of ceremony may be different for different cultures.	This type of activity could be incorporated into plans to renew the community's relationship with the area after closure.	Accepted

TK Panel Recommendations Sessions #1 to 12: Spiritual & Cultural

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
9.6	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Recognize and honour the importance of ceremony in healing the relationship to caribou and contribute to healing events that are currently being planned by communities.	N/A	Diavik works through Implementation Committees that have been established with each of their Participation Agreement communities to determine priority areas for financial contributions. We recommend speaking with your community organizations to identify this request for their consideration.	Accepted
9.22	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Respect spiritual beliefs and the importance of healing ceremonies of Aboriginal communities, work with the TK Panel to plan spiritual gatherings on site now through 2030: one would be held early to help people on site understand Aboriginal ceremonial ways, possibly timed with a TK Panel session (e.g. 2017-8), second would be to start healing the environment (e.g. 2020), third would be designed to seek guidance on the finalization of closure plans (e.g. 2023) and fourth would be large and involved to formally invite the spirits to return to the Island before Diavik leaves (all communities invited, e.g. 2030).	Building in the practice of healing and/or guidance ceremonies is important and can be of interest to workers at the mine, as well as the TK Panel members. It would be helpful to start this practice sooner rather than later.	Diavik is open to further recommendations from the Panel as to when and how this could occur. If the Panel is comfortable with helping to define this, such practices could be incorporated into the TK monitoring program that Diavik is interested in having the Panel develop.	Accepted

TK Panel Recommendations Sessions #1 to 12: Spiritual & Cultural

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
9.23	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Whenever the TK Panel and community members come on-site, allow opportunity, time, space, etc. for the TK Panel to practice 'feeding the land or water' by Panel members and others (visitors or workers) travel to/from the site and consider other ways to raise awareness (e.g. signage).	It is important to recognize and honor customs. While it is easy for the company to focus on their own safety, it is equally important for the Panel to have the opportunity to feed the land or water, as is traditionally done for safety on the land.	Diavik recognizes the importance of this practice to community members and supports any practices that promote safety and wellbeing at the mine site. This practice will be incorporated into future TK Panel meetings, or other community visits to the site.	Accepted
10.24	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Research or monitoring methods that are offensive to elders (e.g. caribou collars) should lead to getting alternative method advice from elders. Diavik should check with the TK Panel as to whether any aspects of the current monitoring program is offensive and revise them accordingly.	The Panel focuses on closure planning and monitoring, but they are also interested in Diavik's operational monitoring and would like to learn more about monitoring programs, methods and results in order to determine if these are suitable and appropriate from a community perspective.	Diavik can share details of each of the current (operational) monitoring programs with the Panel at a future session to determine if methods used are appropriate. This may also help to inform the Panel's recommendations relating to closure monitoring for wildlife.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
1.20	A Way of Life, 25 October 2012, pg. 25	Youth should be involved with the TK/IQ Panel and included in discussions about closure.	Youth live in a changing and complex world and have skills that the Elders do not. They need to learn about their culture and history, as well as about the mines. They will be the future caretakers of the land and the ones speaking for their communities in the future, so they must be a part of the discussions and decisions.	Diavik sees value in having youth participate in TK/IQ Panel sessions, where possible.	Accepted
2.1	Renewing Our Landscape, 7 December 2012, pg. 9; 19 July 2012 e-mail from EMAB	Arrange for a visit to the mine site to see some of the structures that are being discussed for closure, specifically the North Country (waste) Rock Pile. Preference is to stay at a camp on the land, rather than in mine site accommodations.	In order to provide effective and helpful advice, Panel participants need to see areas in person. A fundamental principle in TK/IQ is that "being knowledgeable" requires an experiential context of what is being discussed, as TK comes to the forefront of peoples minds when they are on the land that they are discussing. This helps to understand the area as it was traditionally and to comprehend the change and scale of the current landscape.	Diavik sees value in having TK/IQ Panel members visit the mine site. For safety reasons, visitors stay at the mine site accommodations.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
4.1.3	Checking Nets, 23-25 October 2012, pg.19; Closure/Reclamation and Landscape History Interim Report, 23-25 October 2012, pg.8	Diavik to develop and maintain a tracking sheet for documenting progress on recommendations and action items and present progress to the panel at the beginning of sessions.	Desire for Panel members to see the results of their work and obtain a response from Diavik. Shared learning and acknowledging contributions of others is an important tradition. There is an opportunity to learn from their experience and any recommendations that are implemented. There may be a need to revisit recommendations that are either ineffective or are carried out or interpreted incorrectly. It is also an opportunity to celebrate successes achieved by the Panel and Diavik.	Diavik is committed to providing a response to all Panel recommendations. Diavik also requested that EMAB provide past Panel recommendations to DDMI for response.	Accepted
4.1.4	Checking Nets, 23-25 October 2012, pg.20	Women to have opportunities to participate in TK/IQ Panel – especially for discussions on caribou and vegetation.	Women have specific roles in Aboriginal communities and the knowledge they can contribute is different from that of men. There needs to be respect for the distinct knowledge of women, as Elder women have special gifts and understandings that are important for carrying out stewardship responsibilities.	Recommendation is to the TK/IQ Panel or their community organizations. DDMI does not select Panel participants but could request community organizations to include women participants, as recommended by the Panel.	Not Accepted
4.1.5	Checking Nets, 23-25 October 2012, pg.20	Extend length of Panel sessions to 4 days.	Three days is not enough to review documents, learn about the context of the topic(s) and share new knowledge. The fourth day is key to completing the review and verification necessary to respectfully document knowledge and develop a complete document that all parties are happy with.	A longer meeting is supported, provided that it results in an approved set of transcripts and recommendations by the end of the session.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
4.1.6	Checking Nets, 23-25 October 2012, pg.21	Include Aboriginal words or terms in reports as appropriate. Keep wording in reports simple and make summary notes available soon after a meeting.	Some Aboriginal languages include concepts that are very precise and reflect a more complete understanding than what can be translated. Language contains distinct concepts unique to TK so the spiritual premise of certain terms contained within the language can often get lost in translation. Plain language should be used so that all people can understand it, regardless of their language or reading skills. It is important for participants to review their words and make sure they were recorded and/or interpreted correctly while the words are still fresh in participant's minds.	TK/IQ Panel members should work with their interpreters and the facilitators to ensure that important Aboriginal words or terms are captured within transcripts and/or reports. Diavik makes efforts to report the results of their programs in different ways, for different audiences.	Accepted
4.1.7	Checking Nets, 23-25 October 2012, pg.21	An Aboriginal facilitator would be of benefit to the TK/IQ Panel.	Panel meetings should be organized in a way that fits with the Aboriginal way of knowing. This leads to improved communication, interpretation and understanding of the value of participants messages.	Diavik sees value in having an Aboriginal facilitator involved in the TK/IQ Panel sessions, provided that this approach continues to be supported by Panel members.	Accepted
4.2.1	Working Together, 23-25 October 2012, pg.8	Develop a TK/IQ Panel manual that would be regularly revised to reflect the Panel's process, topics and lessons learned over time.	There are few models for this type of organization or work so it is important to document the Panel's mandate, protocols and procedures. This approach should be recorded in an effort to develop best practices and learn from challenges. Panel facilitators would be responsible for updating the document, for review and verification by Panel members.	Diavik supports the development of, and on-going updates to a TK/IQ Panel Manual. Discussions relating to Panel priorities and schedule should also be included in such a document.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
5.6	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.6	Identify opportunities for Aboriginal participation in closure activities.	The TK/IQ Panel identified landscaping, planting, design and experiments as ideal for Aboriginal participation. Training youth to assist with site activities at closure will be important.	Diavik expects that the majority of closure activities will be completed by Aboriginal people and companies, and plans to work with communities over the next few years to identify and realize such opportunities.	Accepted
5.7	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.6	Engage the TK/IQ Panel in preparations for Elder programs at the mine site.	Panel members see an opportunity for them to assist with defining discussion topics, seeking input on how to prepare Elders and make full use of the visit and how to respectfully document their observations. The Panel can also advise on proper methods for Elder care during such site visits.	Diavik is currently re-evaluating its approach to community engagement with communities. There may also be an opportunity for the TK/IQ Panel to assist with this process.	Accepted
5.8	Closure Reclamation & Landscape History Interim Report, 19-22 February 2013, pg.6	Ensure experts are available to TK/IQ Panel members as needed, based on discussion topics.	It is important for Panel members to have access to technical and/or scientific experts for the topics being discussed, so that they can learn as much information as possible and therefore make informed recommendations. Such an approach supports the cross-cultural learning style that the Panel follows and allows for quicker progress.	Diavik views this approach as beneficial as well, and has supported the Panel with such expertise in the past.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
EMAB-1	Environmental Monitoring Advisory Board TK/IQ Panel Recommendations from February 2013, Letter from EMAB, 8 Oct 2013, pg.2	EMAB feels that Diavik is proceeding in the right direction in working towards answers to these and other questions but recommends that DDMI conduct on-site workshops or community consultations or a combination of both. When this work is completed then EMAB will review the results and if necessary we will convene the TK/IQ Panel in order to review the process, methodology, and results.	References DDMI questions posed by DDMI at the February TK/IQ Panel session relating to NCRP shape, reclamation of roads & laydowns, and revegetation.	October 2013 TK/IQ Panel session was at the mine site. Diavik consults with communities through Closure Working Groups and public meetings held within the communities. In accordance with a letter received on 7 August 2013, EMAB gave Diavik permission to administer the TK Panel.	Not Accepted
7.13	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Complete the TK literature review report so that it can be used as a guide in the vegetation program and closure plan, and be available to communities.	As previously suggested by the Panel, there is value in compiling the existing TK that has been captured by community or company research in the past. Much of this information was compiled prior to Session 7, but a report was not completed. The Panel would like to see a complete report.	Diavik supports the completion of the literature review report that was initiated for TK Panel Session 7.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.17	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Have a women's only session in the field next summer to address vegetation and other issues of interest to them.	Some Panel members felt that there would be a benefit to holding a 'women's only' session in the future, as this may create a more acceptable space for sharing the knowledge that is specific to women.	Diavik's preferred approach, that has also been supported by Panel members, is to focus on creating an opportunity for women to participate in the TK Panel sessions on a regular basis, rather than holding specific women only sessions for certain topics. There is important knowledge that women have to share on all topics.	Accepted
7.18	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Diavik must meet its commitments to support a minimum of two TK Panel sessions a year.	Panel members felt that momentum is necessary to keep the Panel engaged and not have to start from scratch every time they meet. Participants recognize the number of topics and discussions that should occur prior to closure, and that this will take time.	Diavik is committed to the TK Panel and supports meeting on a regular basis. However, the number of meetings per year is not seen to be as important as making sure that we have the right information available to share and that session topics are relevant to the most current closure considerations. For example, during 2015, many TK Panel members were involved in multiple meetings for the AEMP TK Study, making it difficult to arrange a TK Panel session during the summer.	Not Accepted
7.19	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	TK panel members need to verify TK recommendations with elders back home.	Panel members feel that the results of each session are important to be shared with Elders in their respective communities. While Diavik has a role to play in doing this as well, Panel members felt that they also have a responsibility to discuss each session outcome with respected Elders on a more informal basis, and incorporate any feedback they receive into future Panel sessions.	Diavik encourages Panel members to informally share what they learned and recommended with their elders and organizations back home. Any feedback they receive can be shared with the Panel during the recommendations review in the next session.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.20	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Require one male and one female member from each community organization on the TK Panel (or formal alternates); where possible, members must know the LDG area (directed to Aboriginal governments).	Panel members recognize the different knowledge that males and females have, and that both types of knowledge must be recognized and incorporated into the TK Panel closure planning process. While there has been much success in keeping Panel members consistent over time (in an effort to build knowledge and familiarity with the mine and its closure plans), past participants have only been males. Incorporating females into the Panel will result in a change in Panel membership in the near future, but the value and depth of knowledge this change would bring is more important to Panel members than maintaining consistency of past membership.	Diavik has incorporated this recommendation into the meeting notifications sent to the community organizations that arrange for their member participants. It is ultimately the community organization's decision of who to send, so we encourage TK Panel members to also relay their recommendation in person to their community's staff.	Accepted
7.21	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Formalize our recommendations to Aboriginal governments to have youth participate.	All participants recognize the important role that youth play as future custodians of the land. Because of this, it is important that they are included in the closure planning process now, so that they are educated, aware and able to contribute to decisions made that will impact future generations.	Diavik has incorporated this recommendation into the meeting notifications sent to the community organizations that arrange for their member participants. It is ultimately the community organization's decision of who to send, so we encourage TK Panel members to also relay their recommendation in person to their community's staff.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
7.22	Re-vegetation Report, TK Panel Session #7, 14-18 August 2014	Celebrate our TK Panel as a model for other mining companies.	Panel members are happy with the work they are doing. They recognize how unique the Panel is, and the opportunity it provides to contribute to future planning. Seeing the importance of learning from what works, it is felt that the process and results the Panel has developed should be shared with others.	The results of the Panel's sessions are shared widely within the NWT. Panel session reports are provided as part of DDMI's annual closure updates to the WLWB, and this is shared more broadly with all reviewers on the WLWB distribution list. The process and results that you have produced to date are being noticed and celebrated.	Accepted
8.29	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Explore long term monitoring options including how to coordinate and administer an ongoing post-2030 program that continues to integrate TK and science and involves both Elders and youth trained in science. (Consider funding, and if some of the bond can be used).	TK Panel members are very interested in continuing to monitor the land and water in the Lac de Gras area after the mine is closed. Panel members are interested in exploring options for doing such work and determining how best to organize and fund such an initiative. There is a strong interest from the Elders to make sure that the youth of today are the future monitors for this work, which requires early involvement as well as capacity building in scientific and TK environmental monitoring.	While communities may be interested in monitoring past 2030, Diavik needs to plan for ultimate closure and relinquish ownership of the property back to the government. Once this is complete, monitoring would no longer be conducted or organized by Diavik. As such, any long-term monitoring plans past 2030 would need to be funded and coordinated by other parties. DDMI suggests that this recommendation is better directed to community organizations and/or governments.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
8.31	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Continue to provide the TK Panel with teaching and communication 'tools' (i.e. videos, books, photos), to share progress and findings on closure planning with communities.	Panel members felt that information and materials that they can have and use to communicate with other Elders and people in their home communities are helpful to show the progress and importance of the work they are doing and knowledge they are sharing. Items like the AEMP TK Study videos and copies of reports are good.	Diavik continues to provide the Panel and their associated community organizations with reports, videos, maps, pictures or other materials that assist in sharing the work and success of the Panel. Further guidance as to what is helpful and effective for Panel members to use in communicating with others would be appreciated.	Accepted
8.32	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Plan for climate change hundreds of years into the future.	There is concern that climate change will affect performance of some mine infrastructure and inadvertently impact the environment, for example by release of contaminated water. As such, Panel members want to make sure that climate change scenarios are considered in closure design and planning work in order to protect the environment long into the future.	Accepted climate change scenarios have been incorporated in to the planning models that guide design and construction decisions for site infrastructure. This includes planning for long-term performance after closure.	Accepted
8.33	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Re-seed land and use dirt and <i>safe</i> sewage to facilitate re-growth.	As discussed in Session 7 on Revegetation, Panel members are interested in re-seeding the land around the mine to help plants grow back, but it should only be northern species that are used. A change from Session 7 is that Panel members are open to the idea of using human sewage from the on-site treatment plant as fertilizer, provided that Diavik can demonstrate that it is safe to do so (for animal and human health).	Treated sewage is currently stored on site, with plans to use it as a soil amendment to aid in reclamation activities. Diavik is working to determine if the treated sewage is considered safe from an animal and human health perspective.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
9.9	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Contribute to training community monitors in using both traditional knowledge and western science so that common approaches across communities are used and results can be pulled together from many places.	The Panel felt that it is important to support capacity building for community members to actively participate in the closure process, particularly closure monitoring. They recognize that strength in monitoring can be achieved when western science (WS) and TK are conducted together. There is also value to ensuring that the similar techniques and methods are used across industry and communities so that this information is comparable.	Diavik provides site-based training to new hires and contributes to formal training programs through the Mine Training Society and support for the Aurora College BEAHR environmental monitor training program, as well as the College's Environmental Monitor Certification program. If it is necessary to revise or expand existing training programs to meet the needs of closure monitoring, Diavik suggests that this is best coordinated through these professional training institutes. DDMI also provides scholarship funding to community members through their PA's. Diavik suggests that the communities themselves are best suited to provide training in monitoring using Traditional Knowledge.	Accepted
9.11	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Recognizing that Aboriginal communities are committed to their traditional responsibility to take care of the environment, participate with Diavik and other partners (e.g. Dominion Diamonds) to explore ideas and develop capacity to establish a Cumulative Effects Monitoring and Management Station (CEMMS) using the TK camp as a base that has program links to the GNWT Daring Lake Research Station.	The Panel viewed the TK camp as an ideal base for studying the Lac de Gras area after the mine was closed. The GNWT's Daring Lake Research Station is also in a good position to further support such research and the Panel saw value in coordinating efforts with the Government's programs at Daring Lake. In order to achieve this, the Panel identified the need for mines, government and other regulators to work together to determine how best to coordinate and implement a CEMMS (or similarly structured) program.	Diavik intends to continue its scientific monitoring programs through the closure phase. Diavik also encourages the Panel to develop a TK Monitoring Program for the Diavik site. While there are no formal plans for how or who would coordinate regional monitoring in the future, or where to base such monitoring initiatives, Diavik expects that any such regional program would build upon the existing site-specific programs to ensure that similar information is collected to evaluate trends over time.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
9.12	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	In partnership with communities and the GNWT, begin planning a joint TK and WS monitoring program that would begin in 2023 to be ready for implementation in 2025 by building on and expanding the current Diavik monitoring program.	Panel members consider intergenerational plans and programs, recognizing that there is a need for long-term monitoring in the Lac de Gras region long after the mining companies are gone. Given that it can take time to coordinate these types of programs, the Panel sees value in starting these discussions now so that plans are in place for when the Diavik mine is closed.	Diavik intends to continue its scientific monitoring programs through the closure phase. Diavik also encourages the Panel to develop a TK Monitoring Program for the Diavik site. While there are no formal plans for how or who would coordinate regional monitoring in the future, Diavik expects that any such regional program would build upon the existing site-specific programs to ensure that similar information is collected to evaluate trends over time.	Accepted
9.13	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Offer monitor training to provide traditional land users with new skills and techniques to monitor from mine closure through to when Diavik completely leaves the site (expected to be 2030) and beyond for long term monitoring.	The Panel felt that it is important to support capacity building for community members to actively participate in the closure process, particularly closure monitoring. They recognize that strength in monitoring can be achieved when western science (WS) and TK are conducted together.	Diavik provides site-based training to new hires and contributes to formal training programs through the Mine Training Society and support for the Aurora College BEAHR environmental monitor training program, as well as the College's Environmental Monitor Certification program. If it is necessary to revise or expand existing training programs to meet the needs of closure monitoring, Diavik suggests that this is best coordinated through these professional training institutes. DDMI also provides scholarship funding to community members through their PA's.	Accepted
9.15	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Design monitoring training with the objective of understanding what is happening in the eco-system with cumulative effects.	Communities are most concerned about cumulative impacts to the Lac de Gras region. For this reason, monitoring should focus on cumulative effects.	Existing scientific monitoring training programs focus on techniques that evaluate the state of the environment and contribute to understanding cumulative effects through the analysis of the data collected.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
9.16	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Employ community monitor trainees and ensure they have a meaningful role in the design of various aspects of closure work, including the building of wildlife ramps; the reclamation of the PKC, the North Inlet and contaminated sites; and any re-vegetation work on site.	It is important to the Panel to have community members employed on site and participating in healing the land and ensuring a safe environment for future use by wildlife and humans.	Diavik has and will continue to focus on employing people from the PA communities at the mine site. This includes the closure work identified by the Panel. We also see value in incorporating community members in inspecting and evaluating reclamation work in relation to the objectives and plans for each area, whether this be the TK Panel or other community representatives and we are hopeful this will form a part of the site-specific TK monitoring plan.	Accepted
9.17	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Employ and ensure opportunities for high level employment/career advancement of trained community monitors (graduates of the training program) funded by Diavik and/or others. In addition to community members, a minimum of one Elder and one youth from each community should participate in the training program.	It is important that community members have meaningful jobs at the mine, throughout the closure process.	Diavik has and will continue to focus on employing people from the PA communities at the mine site. This includes closure monitoring identified by the Panel. We also see value in incorporating community members in inspecting and evaluating reclamation work in relation to the objectives and plans for each area, whether this be the TK Panel or other community representatives and we are hopeful this will form a part of the site-specific TK monitoring plan.	Accepted
9.21	Focus on Caribou, TK Panel Session #9, 13-16 May 2016	Support the focus of long term monitoring goals for cumulative effects (CEMMS) on natural re-vegetation, return of caribou and other wildlife, and water quality in the Lac de Gras area.	The Panel is hopeful that Diavik recognizes the importance of contributing to long-term, regional monitoring that will continue after the mine is closed.	Diavik intends to continue its scientific monitoring programs through the closure phase. Diavik also encourages the Panel to develop a TK Monitoring Program for the Diavik site. While there are no formal plans for how or who would coordinate regional monitoring in the future, Diavik expects that any such regional program would build upon the existing site-specific programs to ensure that similar information is collected to evaluate trends over time.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.11	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Some start-up watching projects might look at: <ul style="list-style-type: none"> - what plants are growing on disturbed ground and why/why not; - presence of grounds squirrels on the East Island; - health of the shorebirds on the water (as an indicators for health of water); - snow accumulation and natural revegetation around boulders atop the test pile; - watch and monitor dust impacts on water and plants as an important part of the food chain; - animal scat, this should be part of a TK Watching program; - look at possible impacts on plants, with special consideration for those used for medicine. 	The TK Panel is interested in starting to identify the types of things that are of interest to elders and youth to monitor. They recognize that more time and discussion is needed to build on these ideas and confirm what and how to watch the area, but that it is but that it is important to start documenting what has been shared to date.	Diavik is interested in further discussions for TK/community-based monitoring programs that can support or enhance other (western) scientific monitoring programs that will be conducted at the site.	Accepted
10.12	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Pair every adult with a youth monitor. Scientists should also be involved. Consider the TK camp as a good model, bringing elders and youth together with scientists.	The TK Panel members see great value in mentoring youth and advocate for including youth in TK programs wherever possible. The TK Panel recognizes that people learn from one another and respect the different kinds of knowledge that each person contributes. They view this as a good model to carry forward for closure monitoring.	Recognizing that there are still many details to work out in relation to closure planning and monitoring, Diavik is generally supportive of an approach that involves Elders, youth and scientists working together.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.13	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Ideally, watching would occur all year round. At a minimum, watching must occur in all seasons.	The land and animals behave differently depending on the season. There are important indicators to watch throughout the seasons and year to make sure that the land and animals are healthy. Panel members are interested in watching programs that would occur across all seasons.	Recognizing that there are still many details to work out in relation to closure planning and monitoring, Diavik is generally supportive of this approach.	Accepted
10.14	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Watchers should be trained by trained monitors from existing guardianship programs (e.g. Ni Hat'ni Dene, Tlicho, Dehcho). From there, trained watchers will train new watchers through a pay-it-forward model.	Existing guardianship programs are celebrated as good models from which to learn. The next step will be to determine how best to apply their practices, resources, and support systems. Collaboration and sharing are keys to success.	Diavik's understanding of existing Guardianship programs is that they are largely organized and operated by community organizations. It is important to continue discussing this model to determine what role Diavik and others may play in such an approach; e.g. funding agreement for Guardianship program, in-kind donations, program coordination, etc.	Accepted
10.15	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Be designed for long term watching/monitoring as impacts may take a long time to show up (i.e. a plant may look healthy now but in the future it may not be strong if dust or contaminated water affect it).	Community members understand that nature has great power to heal, but that this can take a long time. The TK Panel wants to be sure that there are plans in place for long term watching and monitoring so that they can be confident that closure was successful and the land is healthy again.	Recognizing that there are still many details to work out in relation to closure planning and monitoring, Diavik is generally supportive of this approach and is interested in continuing discussions with communities and regulators to determine a suitable approach for this type of work.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.16	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Watch and check everything (water, wildlife, birds, bugs, small mammals, plants, weather, etc.).	The TK Panel is interested in starting to identify the types of things that are of interest to elders and youth to monitor. They recognize that more time and discussion is needed to build on these ideas and confirm what and how to watch the area, but that it is but that it is important to start documenting what has been shared to date.	Diavik is interested in further discussions for TK monitoring programs that can support or enhance other (western) scientific monitoring programs that will be conducted at the site.	Accepted
10.17	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Ensure long-term, ongoing and significant funding.	Funding and resources are important to secure when planning for long-term watching programs. The Panel recognizes that more discussions are required to determine how best to secure and maintain funding for this type of work.	Recognizing that there are still many details to work out in relation to closure planning and monitoring, Diavik is generally supportive of this approach and is interested in continuing discussions with communities and regulators to determine a suitable framework to support this type of work.	Accepted
10.18	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Be grounded in strong communication and traditional laws around sharing, exchanging and stories.	Collaboration and sharing are the keys to success. Watching programs should be structured to include opportunities for sharing the rich stories that tell the history of the land and enrich monitoring outcomes. Scenarios that encourage sharing should be strongly supported.	Recognizing that there are still many details to work out in relation to closure planning and monitoring, Diavik is generally supportive of this approach and is interested in continuing discussions with communities and regulators to determine a suitable framework for this type of work.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.19	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Start training for watching programs during mine operations by inviting community members to site, i.e. train-the-trainer program. For example, bring up people to work with Environment dept, starting with one weekend a month and scaling up over time.	The Panel recognizes the benefit of training monitors now in order to carry forward those skills for closure and post- closure monitoring at Diavik and other sites. The Panel is supportive of community monitors that are able to work in both worlds of knowledge - traditional and western scientific.	Diavik currently invites and involves community members in some of their on-site monitoring however, it is largely program-specific. Additionally, we have had community members as employees throughout operations. Diavik will evaluate options for community assistants on some weekends. We also continue to support and encourage participation in the BEAHRs Environmental Monitoring program and the Environment and Natural Resources Technology Program offered through Aurora College.	Accepted
10.20	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Diavik should support and encourage the TK Panel to assess and review existing monitoring methods and results to help us determine what and how we should monitor in the future.	The Panel focuses on closure planning and monitoring, but they are also interested in Diavik's operational monitoring and would like to learn more about monitoring programs, methods and results in order to determine if they are suitable for closure monitoring and, if so, how best to apply these to closure.	Diavik supports the TK Panel in this work. We have previously engaged the Facilitators for the TK Panel to compile some examples of TK and other monitoring to assist the Panel in developing ideas for monitoring at Diavik. We have also dedicated some of the past TK Panel sessions to monitoring and continue to plan for future sessions on this as well.	Accepted
10.21	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Encouraging all of the communities working together and supporting each other long into the future will give us strength. Diavik has helped us do this and we must continue into the future.	The collaborative approach that the TK Panel has developed has been effective for all parties to learn and understand everyone's interests, views, ideas and limitations in relation to Traditional Knowledge, the mine and planning for the future.	Diavik views this as a recommendation to the TK Panel members and community organizations. We are pleased that the Panel recognizes the efforts we have undertaken to encourage collaborative work.	Not Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
10.22	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Diavik should plan to leave some buildings (and possibly the airstrip) to support Watching Programs for this and other mines in the surrounding area.	In order to conduct a watching program in the mine area long after closure, it would be helpful to have some buildings present that could be used for accommodation and monitoring activities. Communities will be interested in visiting and observing the area long after the mines are gone.	Diavik is aware of the Panel's interest in having some buildings or infrastructure remain. Options for this will continue to be discussed with communities and regulators. Liability concerns and maintenance requirements may preclude some areas/buildings from being left but we understand that this is important in the North.	Accepted
10.23	Watching/Monitoring and the WRSA-SCRP, Session #10, 14-18 September 2017	Diavik should support the development of a 'best practices' document that explains the Panel's approach to integrating TK into mine closure planning.	The TK Panel is proud of their cooperative efforts to ensure that TK informs mine closure planning in a meaningful and transparent way. The TK Panel is interested in summarizing and sharing their knowledge and approach with others, in hopes that others considering projects in the north of elsewhere can benefit either now or in the future.	Diavik is generally supportive of this idea, though we also think that the Panel's presentations and reports do a good job of summarizing the process and principles that underly the Panel's recommendations and guidance. Something like this may be more valuable further in the future, once closure plans advance and more is learned about how to practically apply these recommendations and guidance.	Accepted
11.7	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel is very interested in water quality and wants to focus a session on the North Inlet as a key area to monitor.	Diavik will dedicate a TK Panel session to the North Inlet Closure Plan.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
11.8	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel wants to better understand what might remain in the pit in terms of how this waste may affect water, fish and the nature of the pit upon closure. The TK Panel embraces their stewardship role to make sure that waste is not left behind.	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.	Accepted
11.9	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.	Diavik has made development of TK-Based assessment of pit lake conditions with deposition of PK a priority and expects to address at Session 12 - September 2019.	Not Accepted
11.10	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.	Diavik has made development of TK-Based assessment of pit lake conditions with deposition of PK a priority and expects to address at Session 12 - September 2019.	Accepted
11.11	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.	Diavik has made development of TK-Based assessment of pit lake conditions with deposition of PK a priority and expects to address at Session 12 - September 2019.	Accepted
11.12	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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.	The TK Panel suggested that the PK should be monitored for a time before the dikes are breached to ensure the PK is as expected.	Diavik has made development of TK-Based assessment of pit lake conditions with deposition of PK a priority and expects to address at Session 12 - September 2019.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
11.13	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	The TK Panel would like to see the PK vegetation plots again.	The TK Panel is particularly interested in seeing "with their own eyes" how revegetation is working.	Accept. Can be done during any TK Panel Session.	Accepted
11.14	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	The TK Panel recommends that we test slimes/PK in a fish tank to see if any water plants would grow on the PK.	The TK Panel discussed ways of minimizing the suspension of PK once it is put in the underground/pit ranging from installing screens to covering pit walls to adding soil, sediment or aquatic vegetation to try to stabilize the lake bottom.	Diavik does not accept this recommendation as aquatic vegetation is not expected to occur at over 100m of water depth due to light limitations.	Not Accepted
11.15	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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).	Concerns were expressed about the effects of wind on the pit areas at closure, particularly nowadays with climate change and winds becoming stronger.	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.	Accepted
11.16	Options for Processed Kimberlite, TK Panel Session #11, 10-14 May 2018	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?]	Concerns were expressed about the effects of wind on the pit areas at closure, particularly nowadays with climate change and winds becoming stronger.	Diavik suggests the collection of video during different periods of wind behaviour would be a better method for these observations; videos could be presented at the TK Panel Sessions.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
12.3	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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).	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.	If Diavik receives approval to deposit PK in mine workings and if Diavik determines that it is feasible/practical to also move EFPK ("slimes") to the mine workings, Diavik will accommodate the request of the TK Panel to witness the transferring of slimes into the pit. Regardless of the presence of PK and slimes in the pits, Diavik will accommodate the request of the TK Panel to witness the filling of the pits with water.	Not Accepted
12.5	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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 measurements to 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.	If Diavik receives approval to deposit PK in mine workings and if Diavik determines that it is feasible/practical to also move EFPK ("slimes") to the mine workings, Diavik will accommodate the request of the TK Panel to witness the transferring of slimes into the pit. Regardless of the presence of PK and slimes in the pits, Diavik will accommodate the request of the TK Panel to witness the filling of the pits with water. Diavik currently conducting Cultural use WQ criteria workshops.	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
12.6	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	Members of the TK Panel worry that plans today won't accommodate changes tomorrow. 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.	Baseline info existing through AEMP Program.	Accepted
12.7	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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. 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. 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.	Per EA measure 2, DDMI is conducting cultural use water quality criteria workshops to inform criteria for dike breaching. Recent model updates indicate that if water conditions are good sooner than two years, better to breach earlier rather than later (to avoid concentration build-up).	Accepted
12.13	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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.	DDMI currently has cameras historically used for grizzly bear DNA program. Need to determine expected goal (presence/absence?).	Accepted

TK Panel Recommendations Sessions #1 to 12: Monitoring & General

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	DDMI RESPONSE	Status
12.14	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	In-person and on-the-ground monitoring is important so people can feel comfortable.	Per EA measure 2, DDMI is conducting cultural use water quality criteria workshops to inform criteria for dike breaching.	Accepted
12.15	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	In-person and on-the-ground monitoring is important so people can feel comfortable.	DDMI's general plan is to develop a monitoring program with a TK component, alongside western science; AEMP is expected to be modified for closure per cultural water quality workshop outcomes	Accepted
12.16	Options for Pit Closure, TK Panel Session #12, 12-16 September 2019	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.	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.	Agreed	Accepted

APPENDIX E

Session Transcription Notes

1 TK Panel Session #15: Day One Transcription

2
3 OPENING PRAYER

4
5 INTRODUCTIONS

6
7 AGENDA PRESENTATION

8
9 **Brenda:** We are going to introduce Myra to do the group discussion on recommendations.

10
11 PRESENTATION ON RECOMMENDATIONS

12
13 **Brenda:** Now we will discuss the recommendations about Myra's presentation.

14
15 **Barb:** First of all, who is the TK Panel, who approves these things? I heard near the end when
16 you were talking to someone else that we are the ones that review these and approve them? Or
17 who is the TK Panel that approves these?

18
19 **Myra:** Excellent question. If you go through the recommendations, you will see that there are
20 some similar recommendations about who makes up the TK panel. Over the years it has
21 evolved.

22
23 Where we are now is that it is made up the 5 Participation groups. Within those 5 groups there
24 is a seat for a male elder, female elder, and a youth as well as translators to support. That is all
25 that we officially have identified. And we work with the staff from all the groups to determine who
26 comes. We encourage people to come back year after year because there is so much shared at
27 these sessions, and you are building your knowledge as you come. You can go out to site and
28 see how what you recommend influences our plans at site.

29
30 Ultimately though it is the community that is making the decision about who comes. Sometimes
31 it is the same people but sometimes it is someone new. That is often the case with the youth.
32 There was a lot of information this morning.

33
34 **Barb:** With vegetation the last time we were here there was a fella here and he had blonde hair
35 or something. When I asked him if they were checking berries, he said no they weren't. He said
36 they didn't check them. This closure recommendations they are working on, you want to show
37 yourself as a role model and I asked him if he did plots to check the berries and he said he
38 didn't, and I asked if they could start. I know it is late now, but Mary-Jane used to pick cloud
39 berries and now she hardly sees them there. It worries me that these are stuff that we eat, we
40 like to pick, all the blueberries, cranberries, blackberries, crowberries, cloud berries. Is that
41 recommended to be started?

42
43 **Myra:** I have 2 more presentations that I'd like to share with you but because I spoke so much
44 this morning and we didn't have time to talk about the presentation. Once we have this
45 discussion, we will go into the recommendations that we heard from April. That was one of them
46 but yes that is something that we will consider for the TK Watching program in closure.

47
48 **Barb:** The water that I'm worried about, it is probably in the recommendations that you said you
49 are going to talk about? Okay, that's one of them.

50

51 **Myra:** Again, there was a big body of work that we reviewed, and it was a lot. If there are any
52 questions find myself, or Gord. Sean will be on site tomorrow.

53
54 **Barb:** Sean was the one I asked about the berries and the water. He said that he doesn't go to
55 the site very often. Is that in the recommendations that he go to the site more often? He told us
56 he was only at the site 2 or 3 times or something like that per year. Is it in the recommendations
57 that we talked about last time?

58
59 **Myra:** His role has changed, he used to be at site all the time. His job was at site. Now his role
60 has switched to focus on closure, so he is in the office in Yellowknife, as am I. He does still go
61 up periodically but his role has changed so that he isn't the one out doing the monitoring
62 himself.

63
64 **Barb:** Is someone else doing it?

65
66 **Myra:** Oh absolutely, we have a team who are constantly actively monitoring different areas of
67 the site. So, it doesn't have to be Sean, but we do have a team working on monitoring at the
68 site. What I will do is show the recommendations from the past two panel sessions.

69
70 PRESENTATION: DIAVIK'S RESPONSE TO TK PANEL SESSION 13 RECOMMENDATIONS

71
72 **Barb:** With climate change happening, if you find new... oh nevermind!

73
74 **Myra:** That is 13.4

75
76 Presentation continues

77
78 **Benjamin:** Do you monitor fish too at the Diavik site?

79
80 **Myra:** The aquatic effects monitoring program is focused on fish and water from a science
81 perspective. Then we have a camp that we go out to every 3 years.

82
83 **Barb:** I want to say again that when a mine builds itself up and becomes a mine, they have to
84 do everything from vegetation to the microbes in the water to the caribou. Every animal, every
85 plant, they have to realize that it is really important to us because it is our land, and we need to
86 take care of it. It is growing smaller by exploration and other things. I just wanted to say that
87 they should monitor everything right from the microbes in the water or marsh right to caribou or
88 whatever the animals are. It is something that is really important to us. If you want to be a role
89 model to other mines that want to become a mine, you have to think about those things when
90 you are planning closure. Even though it is late, do them while you are still at Diavik.

91
92 **Myra:** Thank you Barb and we will go through the recommendations from last session where
93 some of the issues you've raised are addressed there.

94
95 PRESENTATION: DIAVIK'S RESPONSE TO TK PANEL SESSION 13 RECOMMENDATIONS

96
97 **Benjamin:** Do you guys take care of the water too? Like if there is mercury in there?

98
99 **Myra:** There is a very robust fish and water monitoring program that we follow. There are
100 triggers that we watch and if those triggers are met then that requires a certain response. So
101 absolutely we look at all those things including mercury.

PRESENTATION CONTINUES

Wayne: Why is Diavik refusing to test the fish and the water further down from Lac De Gras like the Coppermine River? That is their source of drinking water, why not test it? Put a testing station halfway down.

Myra: There is testing that happens at the mouth.

Wayne: No, the outlet between Diavik and the river.

Gord: We monitor at the end of Lac de Gras because that is where we can get the best tests. If we go further down, it is harder to determine any change that might come from Diavik.

Wayne: Okay you convinced me.

PRESENTATION CONTINUES

Myra: Going through all of that, you'll see there was a number of similar recommendations.

Albert: There is a question I want to ask. Now we are doing the monitoring around that mine area. It's not right that if only the mining employees and scientist are watching over there. It would be better if a community member was. How can we believe if something is going wrong? I think it will be hidden so we want our own community members to watch and come back to the community and tell the story of what he has seen. So, we want maybe from each community to have 1 person to do the monitoring, hire them. We should have 5 people, 1 from each community. We have more trust in our own people than in white man. This is what I recommend because this is our land and we don't want it to be destroyed. So, we don't want anything like to happen because we love our land. I want at least 1 individual from each community working at Diavik, all year round. Watch the caribou in the winter, watch the runoff in the spring and the birds that come.

If they come back from work, they will have a meeting with the public and tell everyone what is happening. I would recommend we hire one from each community to work with Diavik. At closing. We heard a lot of information, and it is hard for Elders to consume all that information so now we have a great concern. Anytime there is a mine as Dene people we have great concern because we don't damage our land, so they have to tell us exactly what is going on when they work on our land.

We want our community member to be working along side the environment people at the mine. Every time they write a recommendation it seems all is good [and] nothing is wrong, but that is not the case. We need to see it with our own eyes. If other people are telling us, we don't know if it is accurate or not. Like I said, the water used to be clear before the mine but now the water changed colours and the fish are less healthy, they are more skinny. The first time we did the fish tasting program, we set nets and collect the fish. We would fry it, cook it over the open fire and boil it. I had recommended that we don't fry the fish because it will destroy the taste of the fish. That is how we used to do it, that is how we monitor the fish is by looking at it. We know if it is not healthy. This is why I am really stressing that we have 1 person/community. That is how strongly I feel, more information will be coming up and I will say something then.

Myra: Thank you Albert. That is exactly what we want to do with closure. We want community members to be making those observations from a community perspective. There will still be science monitoring being done and as part of the framework we shared with you in April. We would like a portion of that plan to include community members validating western science. But we also want community members watching from a community perspective so not western science, but from your perspective. Those are the things we want to understand so we can put them in writing and bring them to the board. But absolutely, as part of the western science monitoring there should be a community member validating what we are doing.

Barb: Back to 14.9, I still want to see the water tested in the Coppermine River. We need to know it is okay. It comes out of Lac de Gras, we should test it a little ways down from Lac de Gras. You said you don't test the Coppermine River, just the opening and closing. That is not testing the water to make sure that that water overtime isn't killing our people or making them sick or something. I just want to know that you are doing the monitoring, not only at the mouth of Lac de Gras but a little ways down. Just to make sure that our water is good for us, maybe it is making people sick. You don't know that, I don't know that. I really want to see the testing of the water a little ways down from Lac de Gras. Maybe a quarter mile down.

Gord: We measure it in the river itself just down from where it leaves Lac de Gras. We measure it twice a year and have been for 20 something years. We can get you all of the data for that.

Barb: How does it look, good?

Gord: It looks very good, but we can see changes in the water that has resulted from Diavik and Ekati. But nothing that would cause affects to fish, people or wildlife. That is the best place to measure any change in the water that could affect Kugluktuk. That is why we measure it, for Kugluktuk.

Barb: Could you test it more than twice a year like when the water has just melted? And you can tell there all that dust that was collected in the fall before it freezes, when it is still snowing and stuff is blowing. Can you test it then, spring, summer and fall time? Maybe winter to see how fish are doing during that time too?

Gord: We do it in the winter when the flows are the lowest so the changes in the water are the biggest. Then we do it at the end of the summer so that anything that would have accumulated over the year is when that is best to measure. We can measure it other times but spring is a hard time to measure because it is hard to understand what is going on with the changing of the water. From a change perspective the best times are the times when we do it. That is why we do it then.

Barb: Why not let Kugluktuk know about the changes in the water, even if it is little? When you do a report, I would love to see Diavik show us water testing in the beginning of your mine up to now. Like how the water is now with both mines.

Gord: Happy to do that, the results are made available every year, but we are happy to come out and discuss that specifically.

Barb: Come visit us and say, "Sorry but your water is like this now".

BREAK AND RAPID TESTING

203 **Myra:** We want to talk about tomorrow.
204

205 PRESENTATION ON LOGISTICS OF TRAVEL TO SITE TOMORROW
206

207 **Kathy:** Wanted to say thank you to the Diavik team and the facilitation team for putting together
208 these recommendations. It gives us a clearer idea of the recommendations we have put forth to
209 close this mine. 76% is a good number especially since there were over 210. We have many,
210 many more but these were the ones accepted, in the works, or completed. So, thank you to the
211 Diavik team and the facilitators, to everyone here who worked so hard to put those
212 recommendations together. To Diavik for considering them and looking to our Traditional ways
213 to close this mine. Kudos to all of you.
214

215 **Albert:** I'd like to say thank you myself there is a lot of work that we have to do towards the land,
216 and I thank all the people that are working with us and the interpreters because there are a lot of
217 us who wouldn't understand without them. So, it is very important that they are available. I'd like
218 to thank everyone that is here, thank you.
219

220 **Peter:** Any final questions or comments before we close for the afternoon?
221

222 **Wayne:** I'd like to thank all the interpreters; you did a great job. And to everyone who attended
223 here, we got a little bit done anyways. And thank the cook there for that really nice Sheppard's
224 pie. I guess that's it for me. Game over.

1 TK Panel Session #15: Day Two Transcription

2
3 OPENING PRAYER

4
5 SITE TOUR

6
7 DISCUSSION

8
9 **Charlie (as translated by James):** (Inaudible) Aboriginal people loved the barren land so much
10 they would come back every year and that is encouraging to the young people. So, continuation
11 with the white fox trapping and all that and then eventually muskox, year after year things have
12 changed. And since the caribou are dying down a little bit too, I guess (inaudible). This is why
13 we are here. This tour here we've got is really so special we should have more Elders coming
14 and then he says that how wonderful they are but next time they might not make it back here
15 because of their age or whatever but he's so happy that he is here and so happy that he had
16 two ladies, one from N'dilo and one Dettah cause age doesn't mean anything what's important
17 is that they convey the message of what they see and what they've experienced in life. Because
18 when they get to that age and knowing that the world is changing, and we have to adapt to it
19 and all that. So that is why I am here, I have to convey my message to my grandchild. Hopefully
20 in the future we should have more youth in the room too. And then all the Elders have their own
21 message to the mining company about what they see here. Because there are a lot of changes,
22 any development brings a lot of changes. You see a lot of natural land out here and you see a
23 lot of the big monstrous waste rock pile, which to me is kind of an eye sore in a way, and
24 probably is like that for the wildlife as well too.

25
26 Personally, he says, maybe the land is kind of ruined for the animals and I for one don't think I'll
27 hunt and trap in this area because well the fact that my life has kind of concluded because of my
28 age but maybe in the future the younger generation may want to come [and] use the land over
29 here. So, these are things that I'd like to send to the company and at the same time too
30 hopefully we can encourage them to come to the mine and learn more and see what it is all
31 about. And see if there is a way to adapt to the changes. We have to encourage them to feel
32 comfortable, to know that the land is there to provide wealth and all that to use and all the
33 animals on it. That is what he said was his personal comment.

34
35 **Gord:** That is a great observation. There is no hiding that pile it's a big pile and will be a big pile
36 forever. And the PKC is big pile, the best we can do is to make it safe so animals can go
37 through it. I would respect the idea that you wouldn't come and hunt this land in the future. Why
38 would you, there are many other places to go but we want to make sure the animals can get
39 through here safely. That is our objective. It won't be the same landscape as it was in the past,
40 but we are trying to make it safe.

41
42 **Charlie:** Just the history, early on, all the people that travelled around this area for white fox. His
43 grandchild used to be grand chief and his name was Eddie Joe Mackenzie. And he travelled
44 around this area by dog team and the Lac de Gras area. So, he travelled around this area for
45 white fox, he was alone travelling this area from Behchokò. Maybe some other people from
46 Dettah did the same thing. He mentioned my dad was trapping and sometimes if he showed up
47 with country food to feed their dogs and if they couldn't find any, he'd go meet up with the Inuit
48 even with the language difference they would get together. And that is how they used to support
49 one another, he thought he'd just mention all that. Somehow, we have to have some friendship.

51 **Barb:** I really liked the tour and liked seeing the vegetation and the plants out there, what did
52 you say you planted it 11 years ago?

53
54 **Brenda:** 18 years.

55
56 **Gord:** She was a child back then (laughs).

57
58 **Barb:** I know (laughs) I was just a little girl. What I'd like to see continue is watching these
59 animals to make sure that they're using the area naturally and that they are going over eskers
60 and stuff like that, keep track of them. And vegetation, I want to see more monitoring of the
61 vegetation. I was really impressed with the tour, and Gord, and our bus driver, Jessie, thank you
62 so much.

63
64 **Vikki:** I enjoyed the tour; it is definitely different than the pictures.

65
66 **Gord:** is it bigger or smaller than you imagined?

67
68 **Vikki:** Bigger. I was joking with Nancy when we stopped at the pit. Look at how deep it is and
69 how much damage just for diamonds. And she was just kind of joking, she said that these
70 companies are just digging into the land for a piece of diamond to put on your ring or something.
71 And also going to each stop I was able to listen to some of the Elders talk, I really enjoyed that. I
72 got to hear more about how it operates at each of the stops.

73
74 **Nancy:** I am so happy to come back and keep coming back. Especially when I can see what is
75 working right and what is working great. First time I came, our land was so hurt, but getting
76 closer to the closure I feel good to see what is working right and thankful for groups like this. If
77 we don't work together, where would we be today. I am thankful for what Diavik is doing so
78 other mines can learn from this. Just like only Diavik is doing the TK Panels, I have never heard
79 others do it and there are so many mines here. So, I hope that they start doing the same thing,
80 thank you.

81
82 **Peter (as translated by Lena):** He is asking about the processed kimberlite area at the top of
83 the hill, wondering about the water at the top of the pond there? From what I know about how
84 they are going to do the containment for the processed kimberlite big boulders are supposed to
85 be put there first and then you are supposed to keep it contained in a certain area. Is that the
86 plan for that now?

87
88 **Gord:** Maybe we can talk to this again tomorrow. But the plan is to put that rock across that flat
89 area, this thick-.

90
91 **Peter (as translated by Lena):** That should be worked on first so that the wildlife don't go
92 through that area and damage or even kill the herd. Animals go all over, day or night, they have
93 no limits.

94
95 **Gord:** Right now, if a caribou went in there it would get stuck. But that is why we are here, Gord
96 and his team, their job is to keep caribou away from there when they are on the island. But at
97 closure it will be the same as the rock that is getting put on the north country rock pile, that
98 smooth layer. It will be that same material all bulldozed out. But what we want to do is in places
99 where we think caribou will want to come on, we can put big boulders to herd the caribou in a
100 different direction from there.

101

Lena: (inaudible) The wildlife will get back to almost what it looked like, it never will be the same, but almost.

Gord: That is the plan, our job is to get it as close as possible.

Peter (as translated by Lena): I do have a concern about the fish in Lac de Gras, the fish camps that some other people have gone to and the one where we went to last August. When we looked at the trout it was so skinny, sick so maybe this lake has no food for them anymore because of maybe the activity here at the mine and the dust and everything. In the future, we want to see someone going to that camp every summer from now on, not every few years. Because you guys are closing from now all there should be a fish camp where people are checking the fish and checking the water. Those are the two most important things right now because this lake might have fish again in the future so if we start cleaning it up right now the water will be healthy with more oxygen in the water for plants to go and fish to feed on. So, I'm really worried about this lake, because it is a big lake, so maybe you guys can do the fish camp every summer instead of every few years.

Lena: I am glad that I came out here, it has been a long time, probably since the early 2000s. And when I went to the fish camp last summer, I really enjoyed myself but when I saw those grizzly bears I thought oh gosh look at those fences, they looks so low, are they really strong enough? But anyways, I really enjoyed what we did and looking at those fish. I was really surprised because there is no food in that lake, and they were so long and skinny with big heads. It just looked like a deformed fish. I'd never seen one like that before, so I was kind of surprised. I took some pictures and showed them to people back home and then said, "I'll go next time, I'll go next time." So, you guys do have to make the camps every summer like Peter suggested. Because you are closing anyways so try to make the land as pristine as possible. Mahsi.

Natisha: Hello everyone, I am a new face, my name is Natisha Drygeese. If you guys know Ryan Miller who works for the Yellowknives Dene First Nation, I am Ryan today. I wish I could have come to all the TK Panels but unfortunately, we are low on capacity. I wanted to say that your remediation project that I see, you guys are doing a good job in comparison to other mines that I've gone to. Some of them are just big disasters so the way that your project is going, I am impressed. I am very impressed, especially with the kimberlite, you guys are doing a good job. I hope I can join more TK panels when we have more capacity. So, thank you for having me out for the day, mahsi.

Mary-Jane (as translated by Lena): This is my first time ever seeing the barren lands. This is my first trip up here. I have never been up here in my life. I'm getting older and when I asked my father about this area, he told us stories about himself when he would come up here to trap and he would have been 14 or 15 years old at the time trapping for arctic fox. And when I asked my dad what the barren ground looks like he said to me it looks flat and shiny, really nice with no trees. I am really happy to be here because it was the first time, I'd ever seen the barren grounds in my life.

Monique (as translated by James): Feeling kind of emotional because my late husband used to work with the team for many years, with the Elders panel and the company. He'd talk a lot about the mines to the younger generation and the employment here. Brought me a lot of good memories and good things back to the community. So, I really got to experience what he talked about so that made me a bit emotional. It is exactly how he talked about it. It is my turn now to take over where he left off and now, I have to do what I need to do on behalf of my community

and the people I represent as an Elder and then the message has to go back to my grandkids so they know what to expect when there is any industry developing in the area. I am happy to be with you.

She says my late husband passed away 2 years ago. I am kind of emotional in a way because he did this job with the panel and the mining company and now that I'm taking over. I am kind of new to the group here but am happy to be here. And one recommendation I can make is to have an Elder directly involved with the mining company and the executives and all that. It is important to include all the communities, we are all the same family and I hope we don't try to avoid one another for the benefit of the nations.

Gord: Hi, my name is Gord, small Gord. I am really grateful for the opportunity and to catch up with some really good friends I made at the TK camp. Really thankful to learn from some really knowledgeable people about the barren lands which I am a huge fan of. I first came up here in 2014 and fell in love with it so when I go the opportunity to work at Diavik it was a big deal for me, especially to work in the environment department and get to be part of the land and monitoring our effect on it. It means a lot to me, and it means a lot that we make the most out of Diavik and the positives that it can bring. I really value the relationships I've built with community members around the north, and I am really thankful that you guys let me be a part of it. So, thanks for coming and providing your wisdom and knowledge for all of us to learn from.

Kathy: I want to thank everyone who made this trip so comfortable and fun. You know, when we go up onto the dyke, I have a bit of fear about heights so when we first stopped "I kept saying, please turn that bus around. I don't want to be on that bus when you turn it around. But I made it through. But my greatest impression on this visit is the North Country Rock Pile and the work that has been done on that sloping. Last time I was here they had just completed the west end of that sloping, so we got to walk up that to see if it was a true 3:1 slope, and it was. It wasn't that wide but to see that they have done now is truly amazing so kudos to all those hard workers that did that. I wanted to see A21 but maybe on another trip. But thanks everybody I had lots of fun today and I'm glad I'm part of it.

Wayne: I'd just like to say thank you to Gordon and Sean for all the information you gave us on the bus and for the whole tour, it was very nice. They were both very informative about what had been done. I noticed, with the North Country Rock Pile, that the last time I was here was the same time as Kathy, so I was seeing the same new things that she was seeing and we were remarking about it as there has been a lot of work done. I just want to say thank you to Diavik for the tour and for everyone showing up. I want to say thank you to the bus driver for driving us around safely and hopefully we will make it to the airport. Also, I'd like to thank that one cook in the kitchen for the pizza. On that note I'll pass it over and thank you very much.

Jessie: This is my first time doing the tour. I am really happy your guys made it here. Just enjoying the stories of you guys and listening to your concerns. It is very amazing for you guys to come here and check out your input and thank you for coming.

August: I have been working with the Diavik for 10 years, I've been on a board since 1997 or 1998 since the mine was open. Once the mine was open there were lots of caribou, holy smokes there were thousands of them. They were coming back from the calving ground. I was surprised to see not many caribou. I'm not blaming the mine for the caribou being gone or not, but a lot of people blame the mine for the caribou going done. For me it's not like that. Anyway, when we visit, we talk about the closing parts like the rock pile. Some things have changed since the last time I was here. The boulders are down, way down far for me than I've ever seen

it. (inaudible). The caribou when they come around there they look for a big hill to lay down and stay away from other animals. (inaudible). Thank you very much.

Brenda: It's been a while, last time I was here it was 2017/18. I was here in November. I came down because I was offered a job underground so I came down here to do the tour and I went between Ekati and Diavik when they were going to go underground. That is when I came down here. And since that it's been 4 years and I have seen a lot of difference. The PK is higher than when I saw it. Where the kimberlites, when I was working around that area it wasn't that big. But when I saw it, I couldn't believe how big it is. That much damage we took out and that's very big for me. When they started off with the PK it wasn't that big, maybe the size of the building here. But now it is bigger and bigger. That is a lot of work that has been done and it is going to be a lot of work. A lot of boulders to cover it. So, half of the piles go back in?

Gord: Just re-sloped and covered.

Brenda: Okay, I was concerned about that too. I was really pleased with the vegetation. We plotted 18 years ago, and I didn't think it was going to work. I went back 3 years in a row and it was growing in one spot here, one spot there and so I lost interest in it in 3 years because I didn't think it was going to grow. But coming back 18 years and it really did, it's going to work. So that one part that you did, you did a good job on it. So marsi cho, you guys did an awesome job.

Benjamin: Thank you for having me here, this is my second time coming to Diavik. Last time I was here was around 2008 and we were doing caribou monitoring with some Elders. There were 4 of us. But I should be getting paid more than them because I was doing all the paperwork (laughs). So, thank you for having me here. I was honored to do the prayer for your guys to do the ceremony. I will pass on my message to my whole community in Wekweèti.

Gord: Maybe tomorrow, you are going out and doing the Boots on Ground program too, maybe tomorrow we can ask you about that because that is kind of what we are thinking about for here and use you as a bit of an expert tomorrow and ask you about what you will be doing this summer and think through what we might be able to do.

Benjamin: I was doing caribou monitoring at Mackay Lake. That was my first time on Mackay Lake, so I hadn't experienced what it had looked like. Mostly they told me there are no trees, straight rocks and flat ground. I was kind of surprised that a young fella like me was hired to go to this and ensure my Tłıchǵ people don't get charged. That was part of my job, to make sure that they aren't getting charged by ENR. We had the proof of what they harvested. Mackay Lake is not a place to go hunting all the time because it is dangerous. I heard that 3 or 2 people passed away in Mackay Lake. But that is what I do, it is my job to make sure my Tłıchǵ people properly go hunting and make sure they clean up after themselves. But this year my first time being a caribou monitor I saw a lot of muskox. They live out on the side there and it was kind of like our job to clean after them. And they left a whole bunch of woods and polls so we have to bring that back to Mackay Lake lodge for next year for whoever is going hunting so we can provide them woods again, so we left it for next year. I'm going to be going in July to Rayrock or Colomac Mine to do bear monitoring. I got hired to do that too so that will be July -September, in a 2-week rotation. I am grateful to be involved with that. Through April I had meetings I was going to with Rayrock, that was my first meeting, and the second one was Colomac Mine, and the other one was Sahti, where we talked about caribou. So, I was pretty busy that month and I told one of my chief and councillors that I am getting more information because of being involved in these meetings that I go to. I guess one of my Elders told me that they need

255 someone like me to be talking, because this is what I like to do, to talk to people. I am not a shy
256 person, I can speak to whoever I want so that is why the Elders like me because I just saw
257 whatever I can and pass my knowledge and my skills onto other generations. Because of these
258 Elders I know my tradition and I love my tradition and to pass on my tradition. I love to sing most
259 of the time so people asked me to their wedding so I can sing. I give out my heart to them
260 because that is what I like to do. So, I'm grateful for being Tłıchò.

261
262 **Claire:** I wanted to say thank you, this is my first time at Diavik. I am glad we had such a nice
263 day I actually think I may have gotten a sunburn a little bit which isn't surprising I burn very
264 easily (laughs). But thank you very much it was great getting to listen to everyone and hear what
265 you had to say about your land. I am very grateful to be here, I will cherish this for sure.
266 Anybody want to say anything?

267
268 **Myra:** I am so glad that we were able to do this circle here and to hear everybody's experiences
269 today. And to have you as our first guests back to Diavik. We are going to continue this
270 discussion tomorrow so please keep all of that in your head. We want to hear what we can
271 improve, what we might still be missing and really get down those final recommendations for TK
272 Watching when we close. On that note, the plane is here!

1 TK Panel Session #15: Day Three Transcription

2
3 **Peter:** Thanks everyone for showing up yesterday. Just a couple housekeeping items, the
4 report for session 14 is at the table and the report for session 13 is at the table. So you can pick
5 up those whenever you want at the break. We are just going to begin with any follow-up
6 comments or questions from the tour yesterday. Gord will be here briefly this morning to answer
7 any questions just before we get into the community watching program. We just want to make
8 sure everyone has had a chance to ask questions or make comments on the tour before we get
9 into the regular agenda.

10
11 **Barb:** At some point where will I hear about the Coppermine River testing. When and where? I
12 just want to know if it will be done.

13
14 **Gord:** You asked the day before about whether we could come to Kugluktuk and present that
15 info is that what you are talking about?

16
17 **Barb:** Yes, and are you going to up the testing? Like you said you did it only 2 times a year,
18 maybe because you are closing you should do springtime, summertime, fall time just to see the
19 difference in the water.

20
21 **Gord:** We do it twice a year. We will take that as a recommendation. And can we come back to
22 you when we come back to Kugluktuk to present the information. We can discuss why we think
23 2 is good or the difference 2 would make, would that make sense?

24
25 **Barb:** Yup.

26
27 **Gord:** I'm not sure who the best person is to coordinate with in Kugluktuk, we sometimes have
28 trouble getting permission but we will get that sorted hopefully in the next 6 months so we can
29 present that information.

30
31 **Peter:** Any other questions for Gord? He will be back this afternoon but is only here briefly this
32 morning.

33
34 **Nancy:** From what I saw yesterday, I was so happy with what has been done. It looks so much
35 nicer than the first time it had been there, so I am happy people are working so hard. Thank
36 you.

37
38 **Gord:** When I got home last night I had a call with Angela, our president, and gave her that
39 same feedback. And the mine site was very happy to hear that feedback that you appreciate
40 what they are doing. I think a lot of them are worried that they are doing all this work, but no one
41 really cares. So, I was very clear to all of them that it does really matter. So that feedback from
42 you really helped.

43
44 **Barb:** I was just thinking last night that I had seen the pictures you had up. There was a picture
45 of all these tunnels underground. If you fill those up with water will the water level go down?

46
47 **Gord:** That is exactly what happens, it takes about 6 months for all the water to be filled up.
48 While we are doing that the water levels go down by a very little bit during that time but then it
49 will return to normal. So, during that one time it will go down a very small amount. It is a very big
50 lake. If it were smaller, it would be more challenging. But you're right, all the tunnels you saw will
51 fill in with water. Good question.

52
53 **Wayne:** I was wondering if we could maybe get a list from the mine about exactly what they are
54 burying in these piles. I saw some tires and I don't think they are going to freight them back out
55 on the ice road. So, I am wondering what is going to go into these landfills?
56

57 **Gord:** Great idea, we can make a list of what does go in and what doesn't go in. So that it is
58 clearer for everyone. You are right, we use general terms like inert waste but let's make some
59 lists for you, that is a very reasonable request.
60

61 **Peter:** Another thing, just from looking at it is, are there things that the communities could use or
62 some Indigenous groups. Like what happens to that fitness equipment, could it go to some
63 youth centres throughout the entire area? I know we are 3 years away yet, but it would be good
64 to start thinking of that.
65

66 **Gord:** We are starting a program this summer with all the business arms of the community as
67 well as other groups to start making a list of things on site that may be useful to donate or take
68 off site by someone else. So, we are starting to get groups to come up to start looking at all that
69 is on site to start looking at what we have on site and start making a plan for what we can sell or
70 donate, other than put in a landfill. There are things that we clearly know are waste and things
71 that are assets which means it has value to someone or something. And the distinction between
72 that is if someone wants it.
73

74 **Peter:** Wayne said he would take any beans that were surplus (laughs).
75

76 **Charlie:** The last four years was the last time I visited Ekati. At that time, they were checking the
77 health of the fish. Some were healthy but others were different, at that time we ate the fish, but
78 today we have concern about the water. Once you put something in the water it will stay in the
79 water. Even the fumes from the airlines goes into the land and the water. That is how the water
80 changes. Even the fish and when they eat the things in the water, the fish changes.
81 When I went there 4 years ago, they checked the fish and also the sediment. Whenever there is
82 any kind of mine, it contaminates the land and the animals. Everything changes around the
83 mine site. We cannot say that it does not affect the environment at all. Even if the mine is there
84 40 - 50 years the contamination is still there, and you can see it.
85

86 Today we have mines in our area and the fish has changed and I notice myself that I'm not
87 going to eat the fish in the area. Even the small game such as rabbit and the fish. We also have
88 woodland caribou so we notice that there is a difference in some of these animals and the
89 texture of the meat is different, we notice. It is just so soft. The texture of the fish is just so soft.
90 There is a difference, so we wonder why there is a change. We have forest fires so that affected
91 the land as well. Even the smoke and the soot go onto the land and into the lakes. That goes
92 into the water and I'm sure the fish eat this as well. Sometimes we used to go on the land and
93 have fish camps, long ago. When we did that, we noticed that the water is always moving so
94 anything that goes on top on in water the fish notice that. Even when they see a bit of
95 movement, they eat it. Even the tip of my finger, they eat it. Whenever we had fish camps where
96 there were plenty of fish on the lake, we set nets. But now we can't even eat those fish.
97 Just recently, I haven't been able to go on the land, but I hear of other regions. I used to go out
98 on the skidoo into all the other regions. I know of areas where there is good camping and good
99 fishing. I know that any kind of vegetation and berries, I know exactly where they used to grow.
100 Today I don't see that, there is a big different. I can't travel there so I don't know how they grow
101 now. We barely go out into the barren ground in the fall time as well. But I notice there is some
102 differences, whenever there is mines you can expect some contamination from the mine.

Even with the roads they create the blast rocks and use these rocks to build roads and we have that dust that goes all over the place on the land. We notice the fish changes, it has a little to do with the forest fires as well. I was once a forest firefighter. Even if it is a little distance, especially when the forest fire is close to the community. Also lands that are beyond the community they don't seem to tend to those ones. That is the most important land because it is where we hunt, trap, and gather. I travel these long distances and sometimes they don't bother to put these fires out because it is too far from the community. It seems like it is a small fire, and they say just let it go, when we do let it go, it becomes a large forest fire. These are all questionable things that they are doing. I just wanted to mention these things because there is a lot of contamination from the mining industry. It seems like they do what they want out there. We had a good trip, thank you for taking care of us out there.

Peter: Any other comments or clarifications?

Wayne: I'd just like to mention to the people here that if you are mining for minerals like gold, or copper, or silver, these mines have a lot of pollution. But diamond mines are separate from that, there is pollution, but the percentage compared with mining minerals is very low. They aren't using arsenic, or other chemicals. Mineral mining and diamond mining are different things. The whole process is different. Even though there is some, their pollution is very minor compared to mineral mining.

Peter: Thanks Gord. What we are going to do next is to get into the input on the community watching program. Over the next 5, 10, 20, years we want input from everyone around the table on how we can design a community watch program and looks at the Diavik site and how it returns back to as natural a state as possible. We want you to throw out some ideas about what the site would look like. What do you want to make sure is watched or monitored after the closing of the mine to make sure the site returns back to its natural state after the closing of the mine? So, we are going to spend around 15 minutes just talking about that then we will take a break and then we will break into smaller groups to continue that discussion. But we wanted to have a vision into the future about what is important to all of you.

Barb: I think we did say some of these at the last.

Peter: We did say some at the last but there are new people this time so we can add to the last session, but it is okay to repeat it also.

Wayne: I'd just like to say the before the mine go there it looked pristine. The land, there was no pollution, no garbage. So, what I think would be the way to go is I asked Gord if there was backhaul when they take stuff up to the mine and the truck comes out empty. He said that there was backhaul being performed by the mine. I think that it is not just what you can see it is more than that. It is not just above ground but also below ground too, I think there should be some attention paid to what is going underground. It is equally important. But they hauled in so much stuff to build the mine. So, it was nice to hear that they do have a back haul, but we don't know what it is coming out. It would be nice to know what is coming back on those trucks.

Peter: So, you'd like to see more stuff hauled out?

Wayne: Yes, if it can be hauled out, they can haul it out.

August: When we were down at the mine yesterday, I have been going there back and forth so many years. What I'm seeing is that everything is different about it and I'm very happy about it. One thing that was said today was that we did say way back in our meetings with Diavik, the newcomers are saying the same things. I forgot what I was going to say now, my mind is going too (laughs). But these reports here, whenever I go back home, I bring it to my wildlife office for anyone to look at I've been doing that since the mine started, there are so many. When people ask me a question, I send them to the office to look at. Even the two days of the meetings, I'm bringing it back home now. For meetings that is what I do, what was said today that we did say way back when the mine was open and I was on the board is that the diamond you guys take out of our land is no poison, it is the money. Some different mines are different, and some use the chemicals for that. That's all I have to say, thank you.

Barb: What Wayne was saying, he was talking about the big garbage and everything. Yesterday I asked about the big pit where the cement bags. I asked Gord couldn't you take that garbage south or somewhere and he said, "Where? Who is going to take our garbage, even the toxic stuff?" I asked is it money that you are worried about, he said yeah. It is crazy that money is an issue when it is our land, you know everybody's land. You've got to take as much as you can with you if you are closing the mine. You need to take as much stuff with you as you can when you are moving out of there.

Peter: Any comments on what you would like the site to look like?

Barb: The vegetation plots that we have seen yesterday were a good test, it looked like things were growing. The whole thing was covered in grass or plants. I really think that you should leave something behind like that to make it more natural.

Peter: So, more vegetation where the vegetation will grow? Okay.

Wayne: There should be some buildings left there for future reference to find out what is happening there over the next 40 - 50 years, that would mean they would have to leave a runway there too.

Peter: Who do you think should be responsible for the building or the runway? Should it be the federal government or the community?

Wayne: It should be a shared proposition; the mine is there and the land still has to be looked into. Otherwise, if the mine wasn't there it wouldn't have to be looked into. It has to be a shared thing between the Feds and the mine, I don't know about the communities because they didn't have anything to do with it. The Feds shouldn't kick about it because they got enough of a kick back from the taxes.

Peter: Who would use it in the future?

Wayne: Maybe not the runway because you can get in by chopper. But the building should definitely be there for someone to go and check on. There doesn't need to be much upkeep on the buildings because most of them were made out of time anyways. Maybe once in a while send in some tradesmen to look things over and bring them up to par and then fly them back out. Also, the trappers and people passing on the land have a place to camp rather than packing tents or tarps or whatever. They may not fish in that area, but they could be passing through that area.

Peter: So, it could be used by anyone travelling through the area so it would almost be like some type of cabin or survival building.

Wayne: And for the people who are monitoring this stuff. It would serve more than one purpose.

Kathy: We had this conversation in one of our sessions regarding the runway and the buildings and who was going to be responsible for the upkeep of them. I believe Gord was there and someone made the comment that maybe for the runway the maintenance could be shared with Ekati. Because at some point they will be going into shut down as well. So maybe there could be a conversation with Ekati about keeping that runway maintained if it is going to stay. They mentioned something about the GNWT. I think they are the ones that are going to get the dollars from Diavik for after monitoring, so there was a mention of the GNWT we didn't say which department. Then also some input from the communities about developing a monitoring plan about when they go out. I just thought I'd add that.

Albert: I'd like to say good morning, my name is Albert Boucher from Łutselk'e. We are talking about the mine, how we can work good at the mine, so we always have to stress this that it is not only one mine we are talking about. Once we close this one mine down the next mine will follow. So, this is why we are putting recommendations. The water and the land is not going to be the same. Even the fish are not going to be healthy right away, the water won't be clean right away. Anything that is contaminated will take a while. Even the roads we have to work on leveling out the land.

Now we are talking about some of the buildings that we will use. So, I would like to have a building there so the hunters and trappers can utilize it. We should also leave the airport there for emergency just in case. We should also have a phone or radio there too, but now we have our own satellite radio. I would further stress having a building there for hunters and trappers to use.

I am also concerned regarding the monitoring of the water. Regarding the fish and the water, I think we should monitor the water in the winter, and in the summer, and even after the mine closes, we still need to monitor the land. Right now, the fish look really skinny and unhealthy so we can't eat it. So how are we going to fix all these things? I would like to know how much money they took off our land? And if they just leave everything like that and take off that is not very good. As Dene People we are the one who will be left behind and who will suffer if anything happens to our land.

Now, I am thinking about it, and it is a big concern to me regarding the land, and water, and also the river that goes into Coppermine from Lac de Gras. They don't even know what will happen with that in the future, we can't look that far. So, before anything and happens in the future we are going to have to put some plans in place to stop this. How do we do this? Because if the water is contaminated, nothing is going to be alive. Because every living thing needs water. Like I said there will be other mines closing on our land. So, if we do it really good the other mines are going to follow our plans. And also, regarding the tires and all the things you will bury. I don't want those metals to be buried under the ground, bring it back to where you got it from. There is contamination in the metal that will seep down into the lake. You could see around the garbage area it is all yellow in the wintertime, you could see all that snow is all yellow near the garbage. One time we also had a uranium mine in our land and now the fish over there is all contaminated because the water was contaminated. The fish over there is all contaminated, we didn't know what was happening at the time. Were illiterate regarding mining. Now we are being taught what is going on with the mine so now we have concerns.

When you do blasting, everything flies into the water. A lot of people have concerns about what is happening on our land and about how they want the people to monitor. So, you have to listen to us people, because this is our land. The mining company is taking out a lot of money and we don't benefit from it. It is like the mining company is destroying a huge piece of our land and taking that away from us.

As Dene People we talk about our land because we live and hunt on it, and we know how our land is. So, this is why we tell people we want to work really good with them if they want to work on our land. So, this is very good I don't want anything hidden from me. If I see something I don't like I talk about it right now. I think about the future of the next generation. It is our turn to teach and watch the land. We are survivors, we survive off our wildlife. So now we don't want our land to be destroyed, contaminated by the mining. So, all those metals, tires, I don't want them buried. I want them taken back where they came from. When we first went over there, they put the rock pile, they made it really high. But that is where the caribou migrate, and it is really high. What if the caribou went up there and fell down, then broke their leg? We want the hills to be flat or a little bit lower slope so the caribou can pass. And if that is done, I will be really happy.

If you listen to us, leave some building and the airport there to be used.

I know the fish and water won't be perfect right away, it will take a long time to be almost natural. Regarding rainwater, snow water, we have to watch that that doesn't seep into the lake. It has to be pumped out. I'd say about 150 years the land will look the same again. When we went out there for the fish tasting program. There is no food in the fish stomach, only bugs. They had big heads and skinny bodies. Our fish are changing in Lac de Gras so all the materials that was brought to Lac de Gras I want it all taken back except for one building and the airport. So, it will be good when they take everything back to where they got it from. Maybe some of the stuff that the Dene People might need like boats and motors. Those should be offered to the community so they can buy it. Like skidoos, we need those things because they are so expensive. Maybe some of the trucks. If they are broken send them back where they came from. Like I said, the metal contaminates the water. I don't want any metals left behind. If the Elders get together and come up with good recommendations by helping each other from different communities. I will end with saying that I love my land, and my wildlife, I don't want anything to happen to it. Some people only think about the money. That is what is happening with the mining companies, all they are after is the money. Dene People are not like that, we depend on our land. I am very thankful that we have a good productive meeting and you'll be letting us know when our next meeting will be. Thank you.

Peter: For your information because you weren't there yesterday, the big rock pile has some nice slopes. That is what Nancy was talking about earlier.

Barb: Myra just has some pictures of before the site became a mine. You see that is natural. Just so you know what they talked about today and what you want to see when the mine is closing.

PRESENTATION OF MINE IMAGES OVER TIME

Peter: Those are great images over time, hopefully in the future there will be more images showing the site going back to a more natural state.

BREAK

306
307 **BREAKOUT GROUP SESSIONS**
308

309 **Peter:** We are going to now present to the group. We will present and then have questions and
310 comments around the table. For the four presentations then that will make the
311 recommendations to Diavik on the community watching plan. We will start with the North Slave
312 Métis.

313
314 **Claire:** I am going to present on behalf of Kathy and Wayne, we had a great discussion about
315 the TK Watching Program. The way it is summarized here, we have some key ideas about what
316 the TK Watching should have as part of it. We said the TK Panel can provide guidance on the
317 process, but a separate committee should be established to include the Indigenous groups
318 here. This committee will decide when the observations will happen, who will do it, and what
319 exactly will be monitored from year to year.

320
321 The group wanted to make a clear note that this watching program won't be static, it will need to
322 adapt and evolve to the observations on the land and the effects of climate change on the area.
323 Then we went into what exactly are we watching in this watching program, we talked about
324 wildlife first. The key thing to look for here will be that the diversity of the wildlife is increasing, so
325 many different kinds of animals. Also look at the behaviours of the animals and the health.
326 Including the internal health, so looking at the tissues of the animals, particularly caribou.
327 The group thought this was important because the diversity of the animals will help to tell the
328 story of how the land is recovering.

329
330 The next topic was about vegetation. This was a key topic because it shows the early signs of
331 the land recovering. And the healthy vegetation will be an incentive for the animals to come
332 back because they have a food source. We talked about mushrooms, lichen, berries and
333 different plants and particularly observing the quantity and health of them.

334 Then we went and spoke about the water and the fish. One of the things that was discussed
335 was the water clarity in Lac de Gras and there had been some observations of not being able to
336 see to the bottom anymore close to the mine. The TK Watching program would look to see how
337 the clarity of the water is returning to normal as the mine is no longer in operation. There was
338 also a recommendation of the fish camp continuing and those camps would observe and record
339 the quantity, the location of the fish and the health of them. It was also recommended to scoop
340 some of the sediment from the bottom and look at that, to see how it changes over time. And
341 overall observations, one would be to have fly-bys of the old mine site. In the winter this could
342 be to look at the cleanliness of the snow and the ice conditions and to see how the animals
343 move across the land. We then had a conversation about how often this monitoring would
344 happen. It was recommended to have 1 visit per year, alternating between a summer visit and a
345 winter visit. In the winter the focus would be on fish and fish health. Then we discussed who
346 would be doing the watching. We had two categories, there would be the watching committee
347 which would be established and then land users who are out on the land. They can provide
348 feedback on what they see or report wildlife sightings or injury or stuff like that.

349 The last thing we discussed was the timeline about how this would go. Splitting it up into 5
350 years, 10 years and then 20 + years, so going into the future more. The group, for the 5 years,
351 discussed how important vegetation would be because that would be what brings back the
352 animals. Looking at the types of animals coming back, continuing the fish testing, and looking at
353 that water clarity as well. We also talked about looking at the location of the fish in the first few
354 years to see if they are coming back closer to the mine. As well, during the first 5 years, they
355 recommended looking at the presence of small animals and birds. And then as it gets to be 10
356 years passed closure, expanding on all of these, we might add in looking more at larger

mammals that are coming through. And then looking at the filled-in mine pits and seeing if fish are returning and if vegetation is growing in that spot. And again, looking at the diversity of wildlife and the amount of wildlife. And then going into 20 years down the road the questions would be: Are animals using the land as they did before? And are people using the land as they did before? So, kind of the bigger picture questions. And then just to restate that this will change and that it will evolve as the program continues and will be influenced by what is seen. I think that was everything. Kathy, and Wayne, is there anything that I missed or that you'd like to expand on further for everyone? No? Okay great. One question that we did have Gord, we were talking a little bit about frogs. Are there many frogs around the site? No. Okay then that is it we will open it up to the group to ask questions if you have any. No questions? That is a good sign!

Vikki: There is a lot of similarities to the first group but what the group had discussed was with the closure of the mine. We know there is funding for community programming and training. Having funding set aside for after they close so the neighbouring communities can access it. The other suggestion is for the watching team to have youth, Elder, and a community member who is knowledgeable on the land for each of the affected communities. Also, to have both genders for the youth and the Elder. And also, for the site visit similar to the first one, do one every year at different times and different locations.

The fish camp, sample fish in the winter and in the fall. And also, taking sediments from under the water. And doing fish sampling and tasting.

For wildlife, have remote cameras around the PKC and the north country rock pile area to see if there are any animals passing through. Have a knowledgeable person travel to the mine site by skidoo and report back to the communities.

Also, to have EMAB and KIA to work together and monitor the closed mine site, and also water watching, report on monitoring how the levels of water are and report back to the community.

Taste the water and see what the water levels are. Fish and water testing at close to Kugluktuk at the beginning of the river flow. Consulting with the Elders, I know not a lot of Elders can read the reports and the documents. More videos in their language so they can have a better understanding. The community watching team if you don't see something right then who do you report to. Diavik? GNWT? WLWB?

Look at old and new spots for vegetation watching, see if there are any berries that were growing. For the land, no high-danger spots or the dump, anything that is being buried. For the PKC, to look to see if anything is opening up, or leaking. Future dust monitoring, for the community watch team is to keep the old posts that are there right now so that the watch team can go out and watch it. Look for permafrost slumping and also temperature monitoring. They were asking about how they would get there, float plane or regular runway? Where would the team stay? The tent frames need to be bigger in the kitchen for group discussion. That's all, do you guys have any questions?

Peter: Good job Vikki. Any questions or comments on the presentations from the Kugluktuk group? Do you know if there are any answers to how the team would stay out there?

Gord: We are certainly working on it and exploring the options of how we could keep some of the camp. The camp that we were having lunch, it has 4 wings. Do we keep that and maybe one or two of the wings, a few of the buildings or the airstrip? Or whether we take it all down and put up a bigger better tent camp. We can always do what we did in exploration where we land on

floats or skies. We will need something there for a little while to support it but maybe eventually it gets back to the size of the tent camp.

Or do we take it all down and have something new like the tent camp or something more permanent?

We will still be around, it might not be called Diavik, it might be Rio Tinto. There are legal requirements for us to monitor the PKC dam, so I sure hope it would be straight to us where any of the concerns are going to come.

Myra: I have the pleasure of working with the Tłıchǫ and the Yellowknives Dene and I think I was the only one who only spoke English in the group. I was working with Elders, and though I was trying to convince Lena to come and present...she is still back there (laughs).

We started the discussion about the building. People were quite interested in knowing how we will get out there and what supports there will be to do the watching. Leaving the buildings for watching, travelling, emergency purposes. Leaving the air strip, who will own them, can you leave some woods out there. So, we did get into some of those practical stuff. But then we discussed vegetation, we pulled the art rendering map down.

There is still quite a bit of grey on that map, there was an interest in seeing more vegetation and how could that happen. First there was discussion about bringing in soils to accelerate vegetation growth. There are some examples from Rayrock remediation that is occurring there. So, they've seen some revegetation and were interested in that, but then trying to bring the group back to this idea and what you'd like to see in the future. A lot of the discussion was about bringing the site to as natural a state as possible and that nature will take care of that. This idea that weather, wind, rain, natural erosion will wear things down as part of the natural process of cleansing the land. Even the dikes will be worn down some what from the water and the ice.

We talked about wildlife, they will eventually come back naturally once the mine has stopped and the disturbances are gone. There is an expectation that wildlife will come back to the area. We didn't get into some of the details about the specific things to watch but we looked at the bigger picture of things to watch like the landscape, vegetation, wildlife and how there is a natural process that will occur over time. We had a youth who had some recommendations, she had been at the mine before and had some thoughts.

We will reach out to her and make sure we get anything she has to add. I can't remember if it was Charlie or Peter, but, "in 100 years, well, we will be under the ground feeding the caribou!"

Barb: Is that girl that you were talking about going to come back? It would be nice to hear her comments as she has worked on the mine.

Myra: I did encourage her to come back but she is just so busy that she didn't think she'd come back but we will touch base with her and encourage her to come back.

Kathy: One of the suggestions in the presentation was to possibly bring in soil to revegetate the land. I think I would be cautious about that. I garden and my neighbour gardens. Last year she got some soil from Hay River that choked out her entire garden. So, soil that comes from some place else is very dangerous for the arctic. We don't know what's in it. I've heard reports of people in Yellowknife finding slugs in the soil coming from the south. I don't know their survival rates. But I think using soil from elsewhere can be dangerous. I just wanted to mention that.

Myra: Thank you so much for that Kathy, I know we did have recommendations in the past like that, but it seems to me that over the course of time the TK panel has moved towards more of a natural healing. That is kind of the way how our conversation went, we started with the idea of bringing in soils from outside but then it was that the land would return to a more natural state.

Peter: Now Brenda is going to present on the Łutselk'e group.

Brenda: So, from our group what they requested more youth, ladies and young men, in our meetings and to work as environmental monitors. One youth and one Elder. One recommendation, for the pit instead of putting just water put halfway with boulders and the other half with water. That is what they said. Because sometimes the water wouldn't freeze. And the controlling of the dust, train all the youth in the environment to watch the mines. There was a lot of talk about global warming and one recommendation from one of the Elders was to move the fish camp away from the boulders to a nice smooth location. Before refilling the dykes check with Ekati because they had underground water and see how that is going and if they are losing any water, double check with that.

They talked about the vegetation, keep watching that. The buildings should be donated to all the First Nations, boats, oil stove, tundra tents, should be donated to all the first nations. Mostly what was already talked about is similar to what they said, everything is documented down. Any questions? Gord, maybe you can answer the question about putting the rock in the pit then putting the water back in?

Gord: That is something we have talked about from the beginning. It is really expensive and not the best way to manage the acid-generating rock. So, we don't want to put that into the water, we want to keep that frozen on the land.

Albert: The questions I want to ask is every time the Elders want something you are always putting money in front. And how much money you took off my land? The land has been there from the memorial of time, it was pristine and beautiful but now after the mining company came in it doesn't even look the same anymore. But what the Dene People are requesting is to fill the pit with half water/half rock.

The reason we are stressing for this to be done, if the water is very, very deep it won't freeze at all to my knowledge. And when it is really deep, if something falls through it would be really hard to take out. And we wouldn't even know it was there. This is our land. We want people to come to our land and work with us at least. This isn't for me but for the generations behind me. They will come back to the land; our Elders have told us that. We will be going back to the land that is the only way we will survive. That is what our Elders who look into the future tell us. I am pretty sure it is easy for you guys; you took the rocks out of the open pit but it's kind of hard for your guys to put it back. Why is that? You won't even tell us how much money you guys pull out of my land. Look at all the material that you guys brought over there. If our land is destroyed no money can pay for it, I'll tell you that. When we talk about our land as Dene People, we go all the way out to Kugluktuk. That water is very important to the people of Kugluktuk, everybody uses that river. So, we don't want our water to be polluted. And if our water is polluted that will be expensive. That is what we are trying to prevent, but you keep saying it is too expensive.

Maybe we should have a big meeting with the mining executives then maybe we will be heard. Just give us a call and we will be ready to meet. Just give us a call and we will be ready to meet. We want the mining company to work off of exactly what our recommendations said.

We have to try to make sure we close this mine good, so anything that the Elders don't like. You guys always have an obstacle in front of us. Why is that? You are working on our land so you should be listening to us so we can work together with the mining companies. And when I ask questions, it is because I see with my eyes. If I didn't see with my eyes, I wouldn't say anything. That's all for now.

Gord: Could I ask a question back? That's the first I've heard that the ice won't freeze over top. That's not something we've heard before. We think that it will freeze. So, we do think it will be safe.

Albert: When they do the blasting there is some residue left behind. Even the trucks doing the hauling, the oil and exhaust drips on the road. This is why if the oil is mixed with water, it is not going to freeze. It is not only me. I had conversations with other community Elders when they first took that open pit they should have washed the acid off the rocks and make sure there is no oil mixed with those rocks. Because we still have concerns about how you guys are going to close up that open pit. The best option we know is to put half the rocks back in then fill it up with water. If that works, well, then the other mining companies will follow. So we don't want our land to be contaminated because of this mining. I don't want that open pit to be filled up with water. We have been thinking about that for a while, but you don't listen. If you have another question, I will answer you.

Gord: No, I don't have another question.

Peter: Is there anything else related to the community watching program that anyone else wants to bring up before Gord just gives us a general response to the recommendations made? He already gave some feedback already but any comments before Gord responds?

Gord: I think this future watching program is a difficult thing. One of the things I heard that I really agree with is that it is going to change over time as we understand and see different things. We can't guess right now everything that we are going to look at, it is an important message that we start but be ready to make changes as they come up.

I think if we put all of those lists together, and past recommendations, we are going to have a comprehensive list of things that people want to see, I think that is a great place for us to take it from you now and start to figure out how to make that work in a watching program for closure. I really thank you for all of your efforts and all of your patience as we try to explain what we are hoping to do at closure. I can't wait to see it all written down, that will be very helpful for me. Thank you very much for all of your ideas.

Barb: Do you like any of them? (laughs)

Gord: It's more like, do I not like any of them. I don't think I've heard much more new information but you put it more specifically which is what I was hoping we'd do. All very good!

Peter: Myra is going to talk about next steps and any future meetings and reports as well or anything else that people are wondering about regarding what happens now.

Myra: I will just reiterate what Gord has said, it was very difficult at the beginning to see how we were going to end this session because we have been asking the same questions to many of you.

So, we are really grateful that you were able to come up with some very specific direction of us as we put together this watching program. It is easy for us to do it from the science side because that is what we know. Thank you so much for sharing all of this information with us. As I explained earlier at the last session, we are putting together this watching program to share back to the water board in our final closure and reclamation plan. So we are going to take these ideas and use this as a framework. We have a session with community staff and some regulatory where we will share some of this information. We would also like to get back to each of your communities to also share what we heard and get feedback from your individual communities, your staff and your leadership, and then put that together to present to the water board. There will still be things that are changing over the years as we develop this program as we are watching changes.

Gord: I have one more question of you all as we go forward. As you all know you are the 5 Indigenous groups with participant agreement with Diavik. That set the who sits on this panel. We have been asked by the Deninu Kue, Fort Resolution Métis Nation, and the NWT Métis Nation, who do not have agreements with Diavik and who do not have representation on this panel, if we would consider including them on this panel. They have an interest, same as yours, of sharing their Traditional Knowledge with us.

We are not entirely sure what to do with the request, it is our problem to deal with, but we would like to hear what this panel thinks about making a change and adding more people. We would be interested in hearing what you have to say before we make a decision.

Peter: Just for clarification, Gord were you in the room when this was discussed?

Gord: If this has been asked or answered we will leave it at that.

Peter: For anyone who wasn't there, Myra did ask that question back in April and the response was very strong. That this is a political question and that it needs to go back to leadership. Unfortunately, Gord wasn't here for that last time. But that was the answer from everyone around the table last time.

Albert: Thank you I've been listening to everything. We had a really good meeting, I think. The question came up again, we talked about it. It is not up to us because we represent our community on these committees. We cannot make this decision on our own. This is a question we have to ask our leadership. We are here representing all our community members. Even you have to answer to your boss, we are just like that here in the committee. We can't say anything, we have to question the leadership. We have no authority to make a big decision like this without our leadership and our council. So, this is what was passed on to them but we didn't get an answer yet. You might even get a call before they consult us, so this is the things we need to pass on. I really enjoyed this meeting.

Peter: Any final comments around the table before we wrap up.

Peter Sangris: (inaudible) The committee should meet on a regular basis to update each other because most of us are Elders, and the communication is not always that clear. The lake itself doesn't freeze over but that is the nature of the land. There are all sorts of fish in the water these were all being done by the creator. Why the fish change over time, maybe there is some mercury and then some salty water. Some of the stuff in the water is not good for fish, so overtime the mine was in there and then we could have done more studies for the fish. Allergies in the water can be hard on the fish.

609 When one member mentioned something about the fish not being healthy in past studies, the
610 reason why could be because there are a lot of little streams, creeks, river, and a lot of different
611 allergens that float in. And then most of us have just joined the committee and we should have
612 done more study in the past. These are mostly my comments and concerns with the water,
613 thank you.
614

615 **Nancy:** I am so happy to be back, for our people to learn the way I was talking in the beginning
616 because we are upset about our facilitators. I am not talking about people, but for the future we
617 should be informed. I am so happy today that I get to have these notes to bring home because
618 sometimes people ask what we had a meeting about so I can show them this and say this is
619 what we had a meeting about. Thank you and have a safe trip home.
620

621 CLOSING

APPENDIX F

Photos



Photo 1 Monique (Margaret) Nitsiza, Mary-Jane Francis, Nancy Kadlun, Barbara Adjun and Vikki Niptanatiak at the airport in Yellowknife.



Photo 2 Open prayer at the airport at Diavik by Benjamin Pea'a and Jessie Eyakfwo.



Photo 3 Mary-Jane Francis and Jessie Eyakfwo talk at the front of the bus.



Photo 4 TK Panel participants and DDMI staff during the pre-site tour Safety Orientation.



Photo 5 Monique Nitsiza and Mary-Jane Francis look at a photo from a past TK Panel site visits.



Photo 6 Vikki Naiptanatiak at A154 pit.



Photo 7 Left to right: Sean Sinclair, Wayne Langenhan, Brenda Michel, and Barbara Adjun at the A154 pit.



Photo 8 Mary-Jane Francis and Monique Nitsiza.



Photo 9 A154 pit site.



Photo 10 Left to right: Nancy Kadlun, Brenda Michel, Katherine E Arden, Barbara Adjun, Sean Sinclair, and August Enzoë at A154 pit.



Photo 11 TK Panel participant listen to Sean Sinclair discuss the Processed Kimberlite Containment area.



Photo 12 Wayne Langenhan and August Enzo near the Processed Kimberlite Containment area.



Photo 13 TK Panel participant in front of the Processed Kimberlite Containment area.



Photo 14 TK Panel participants and DCE staff in front of the wind turbines.



Photo 15 Vikki Niptanatiak and Nancy Kadlun in front of the wind turbines.



Photo 16 Group Photo at the Diavik complex.



Photo 17 Sean Sinclair and Barbara Adjun look at wind turbines.



Photo 18 Peter D Sangris and James Rabesca view the re-vegetation area behind the North Country Rock Pile.



Photo 19 TK Panel participants look at the landfill location.



Photo 20 TK Panel members view the vegetation plots



Photo 21 Natisha Drygeese, Claire Timcombe, James Rabesca, Mary-Jane Francis, Monique (Margaret) Nitsiza, and Gordon Cumming in the Diavik gym.



Photo 22 Benjamin Pea'a, Charlie Apples, James Rabesca, Dylan Price, Gord Macdonald, Wayne and Myra Berub, in the Diavik gym.



Photo 23 Angela Bigg, President and COO of Diavik, addresses the TK Panel Participants with Peter Clarkson, and Brenda Michel of DCE in Yellowknife.



Photo 24 TK Panel participants during discussions in Yellowknife.



Photo 25 YKDFN and Tłıchǫ TK Panel participants and interpreters discuss their recommendations during a breakout group session.



Photo 26 Wayne Landenhan, Kathy Arden, Monique (Margaret) Nitsiza, Mary-Jane Francis and Peter D Sangris listen to a presentation.



Photo 27 Presentation of the summary of recommendations. Brenda Michel in the foreground.

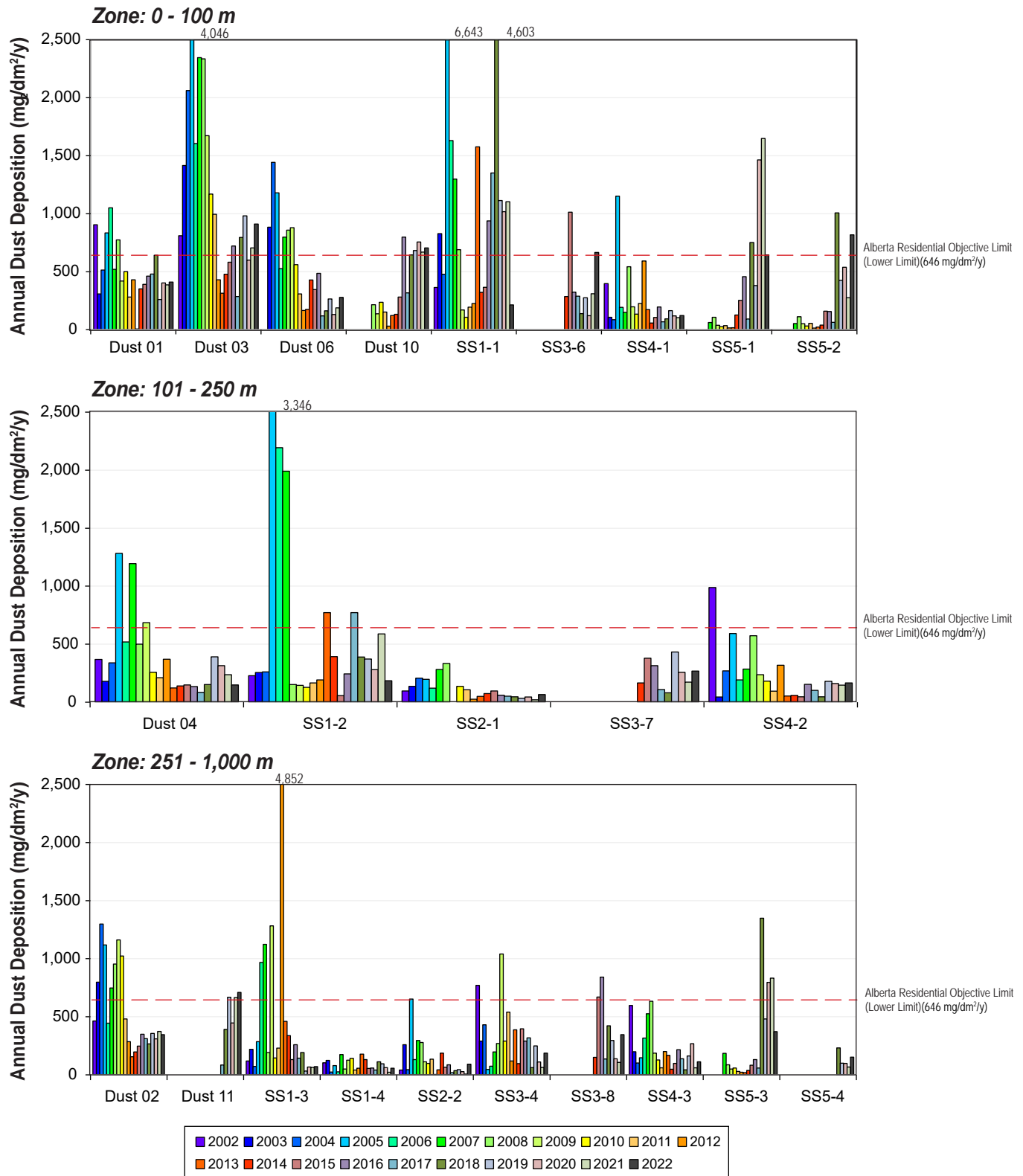


Photo 28 Myra Berrub presents the summary of recommendations.



Photo 29 Vikki Niptanatiak presents a summary of recommendations from the KIA breakout group.

Appendix IV Annual Dust Deposition Figures



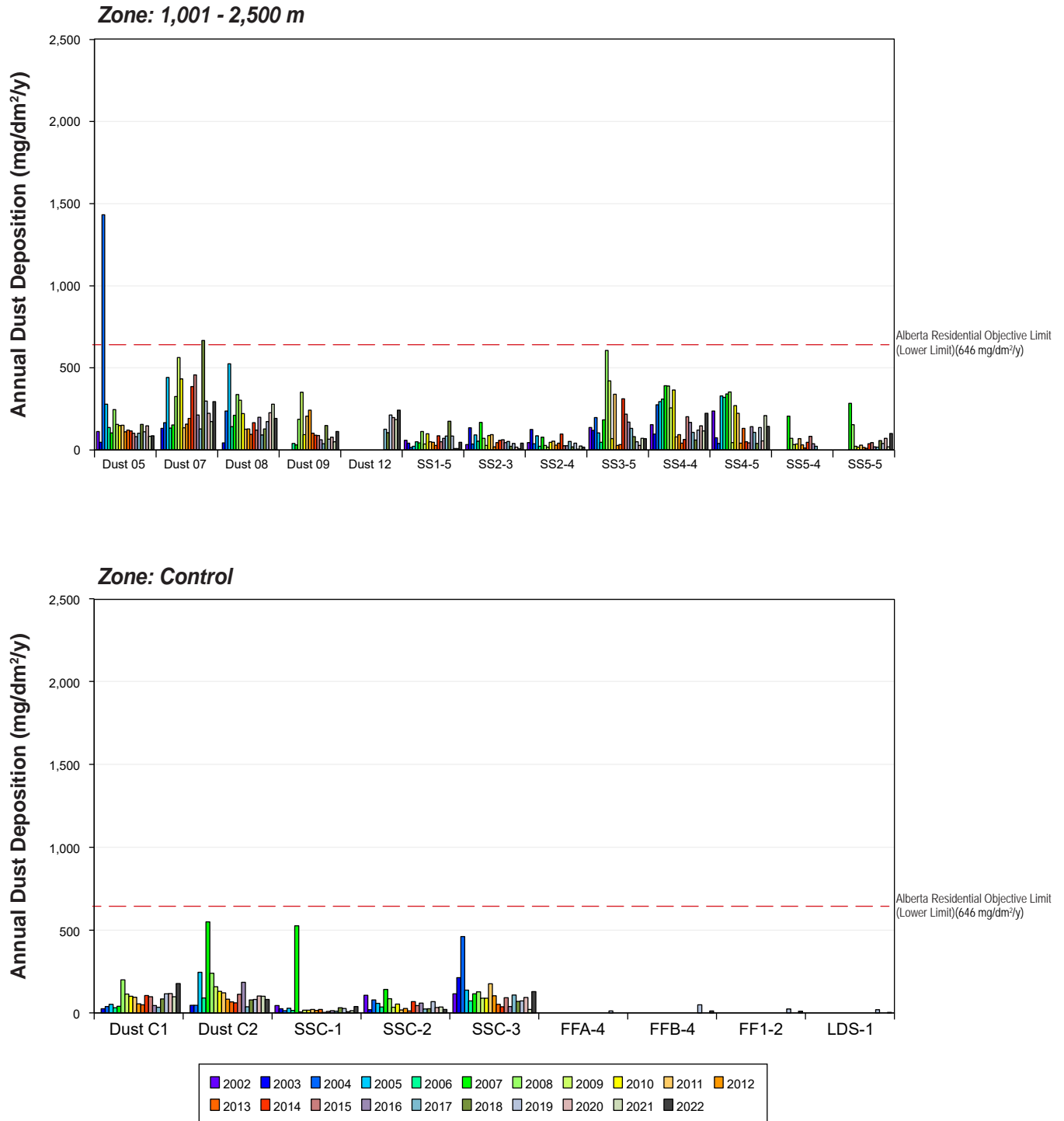
Notes: Annual deposition was calculated using the methodology described in Section 2.

See Table 2-1 for actual 2022 sample exposure times.

Station locations have been grouped into zones based on their distance from the 2019 Project footprint (see Section 3 for further details).

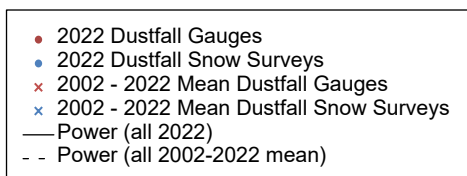
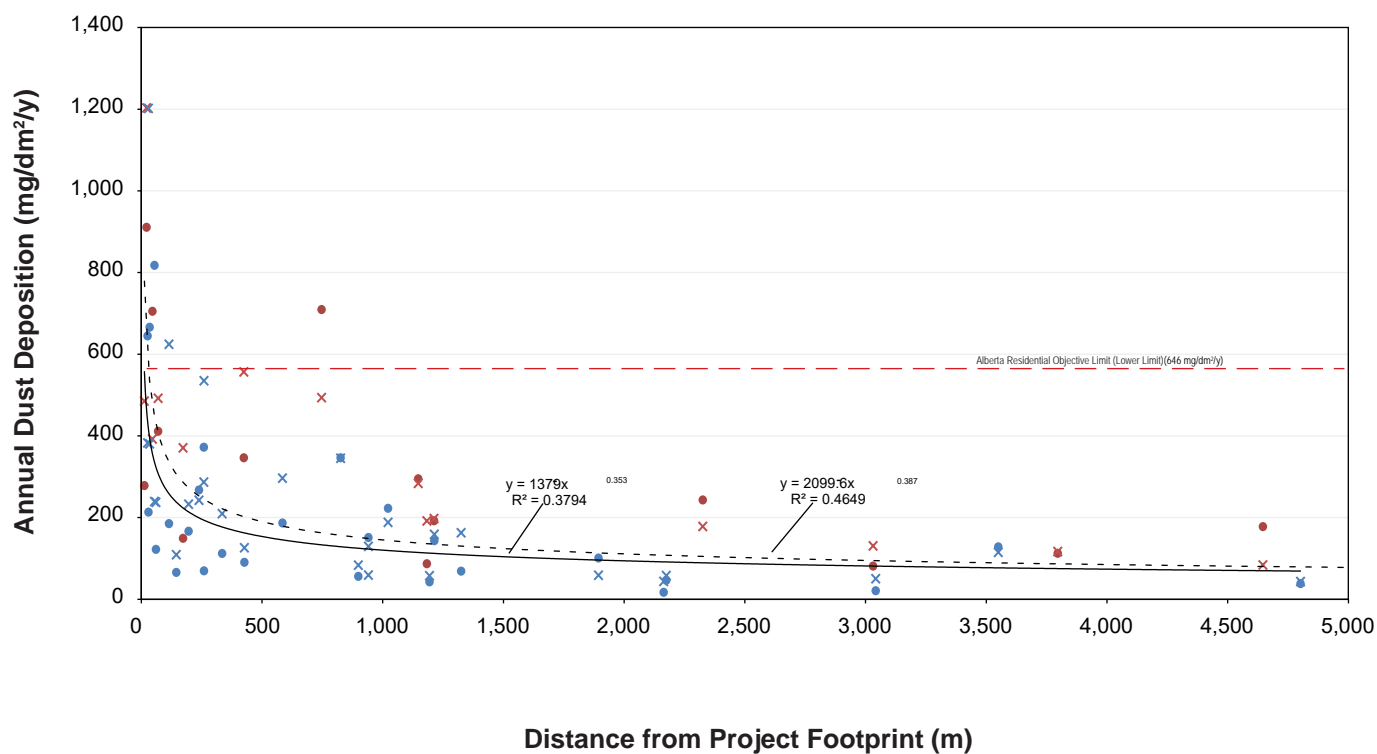
SS5-4 moved to 251-1,000 m zone in 2018

Figure 3.1-2: Calculated Annual Dust Deposition Rates at Dustfall Gauges and Snow Survey Locations up to 1,000 m from the Project Footprint, Diavik Diamond Mine, 2002 to 2022



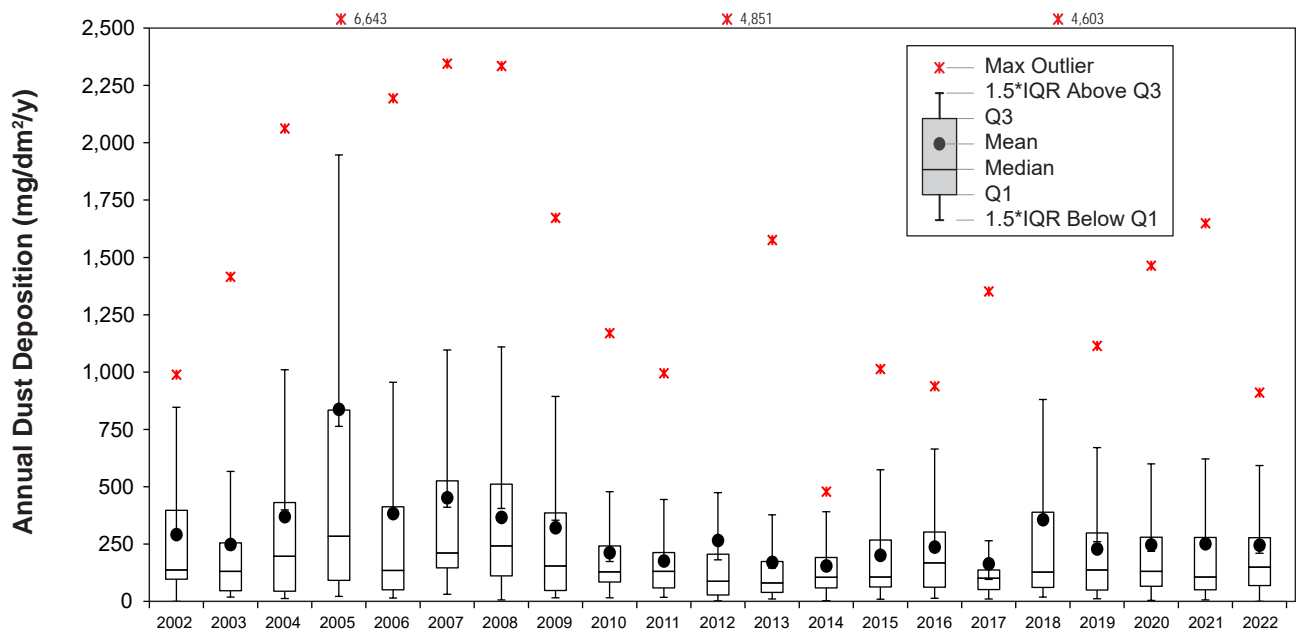
Notes: Annual deposition was calculated using the methodology described in Section 2.
 See Table 2-1 for actual 2022 sample exposure times.
 Station locations have been grouped into zones based on their distance from the 2019 Project footprint (see Section 3 for further details).
 New locations added in 2019 and 2022 include FFA-4, FFB-4, FF1-2 and LDS-1
 SS5-4 moved to 251-1,000 m zone in 2018

Figure 3.1-3: Calculated Annual Dust Deposition Rates at Dustfall Gauges and Snow Survey Locations Greater than 1,000 m from the Project Footprint, Diavik Diamond Mine, 2002 to 2022



Notes: Annual deposition was calculated using the methodology described in Section 2.
See Table 2-1 for actual 2022 sample exposure times.

Figure 3.1-4: Dust Deposition Versus Distance from Project Footprint, Diavik Diamond Mine, 2022



Notes: Box plots represent the magnitude distribution of the annual dustfall rates from the dustfall gauges and snow surveys.
 Annual deposition is calculated using the methodology described in Section 2.
 See Table 2-1 for actual 2021 sample exposure times.
 Q1: Lower quartile (25% of data are less than this value),
 Q3: Upper quartile (25% of data are greater than this value),
 IQR = Q3 – Q1 (the interquartile range).

Figure 3.1-5: Dust Deposition Box Plot, Diavik Diamond Mine, 2002 to 2022

Appendix V Annual Snow Water Chemistry Figures

Annualized dustfall rates estimated from 2022 snow survey data ranged from 0 to 817 mg/dm²/y (Table 3-1; Figures 3.1-2 and 3.1-3). The maximum dust deposition rate was recorded at SS5-2 followed by SS3-6 (666 mg/dm²/y) and SS5-1 (645 mg/dm²/y). These rates are lower than maximum rates recorded in 2021 (DDMI 2022). The three sites are located within the 0 m to 100 m zone (Table 3-1). The higher dustfall rates at SS5-2 and SS5-1 is associated with the mine activity at A21 open pit (Figure 3.1-1). SS3-6 is located due south of the A154 and A418 open pits.

The highest mean dustfall rate using both dustfall gauges and snow surveys was recorded at the 0 m to 100 m zone (530 mg/dm²/y), while the lowest mean dustfall rate was recorded at the control-assessment zone (7 mg/dm²/y) followed by the control zone (89 mg/dm²/y). Mean dustfall rates estimated within the 101 m to 250 m, 251 m to 1,000 m and 1,001 m to 2,500 m were 167, 244 and 133 mg/dm²/y, respectively (Table 3-1). Dustfall rates at stations SS3-7, SS4-4, SS5-2, Dust 3, Dust 7, Dust 11, Dust 12, Dust C1 were greater than the upper limit of the 95% confidence interval (CI) for their respective zones in 2022. The 95% CI was exceeded at two sites in the 0 m to 100 m zone (SS5-2 and Dust 3), one site at each of the 101 m to 250 m zone (SS3-7), 251 m to 1,000 m zone (Dust 11) and the control zone (Dust C1) and three sites in the 1,001 m to 2,500 m zone (SS4-4, Dust 7 and Dust 12). The exceedances of the 95% CI can be explained by either the proximity of the site relative to its zone to the project footprint or by the dominant wind direction.

Annualized dustfall estimated from snow survey stations in 2022 were generally comparable to 2021 dustfall estimates (Figure 3.1-5), with 19 out of 27 stations recording higher rates in 2022 than 2021 (Figures 3.1-2 and 3.1-3). The annualized dustfall rates estimated from snow surveys in 2022 never exceeded the upper limit (1,922 mg/dm²/y, which applies to industrial locations) of the Alberta Ambient Air Quality Objectives and Guidelines at any station, while only SS3-6, SS5-1, and SS5-2 exceeded the lower limit of these guidelines (646 mg/dm²/y), which applies to residential and recreational areas.

3.3 Snow Water Chemistry

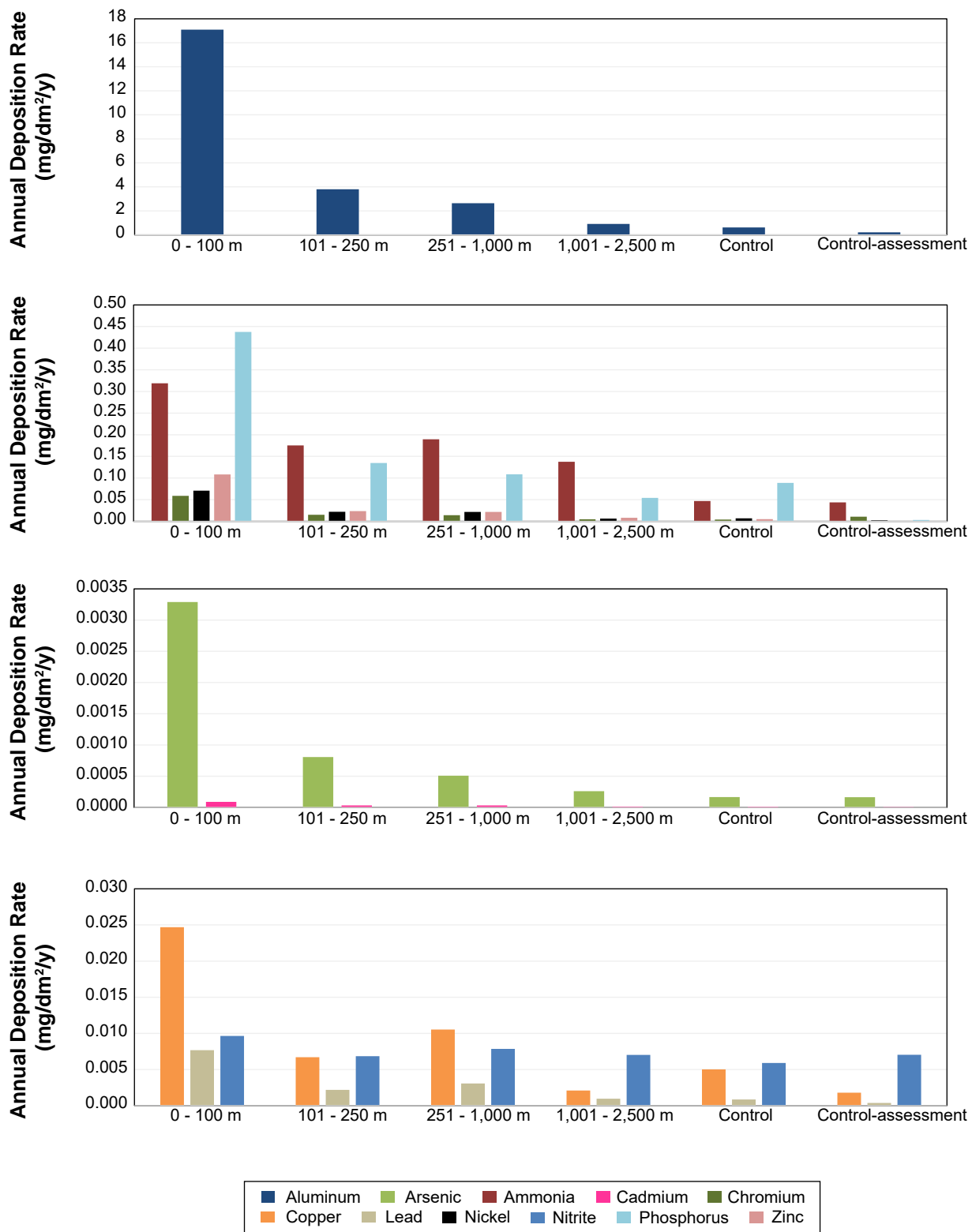
A summary of the snow water chemistry results for each variable of interest (i.e., variables with EQC and phosphorus) is provided below. The full suite of analytical results for snow water chemistry is included in Appendix D. For QA/QC purposes, duplicate samples were collected at stations SS1-5, SS3-4, and SS4-4. An equipment blank sample was also collected. Results of QA/QC samples are discussed in Section 3.5.

All 2022 sample concentrations, except aluminum and zinc at SS3-6 in the 0 to 100 m zone, were less than their associated reference levels as specified by the “maximum concentration of any grab sample” in Water Licence W2015L2-0001. The lowest concentrations were recorded at the control-assessment stations, particularly at FFA-4 station, while the highest concentrations were recorded at SS3-6 or SS5-3 stations.

In 2022, median concentrations of aluminum, ammonia, arsenic, copper, nitrite and zinc within the closest zone from the mine footprint (0 m to 100 m zone) were higher than in previous years (2020 and 2021), with 2022 median aluminum concentrations were the highest in the record (since 2001; Figure 3.3-2). The average concentrations and areal deposition rates of snow water chemistry variables of interest decreased with increasing distance from the Project (Figure 3.3-1).

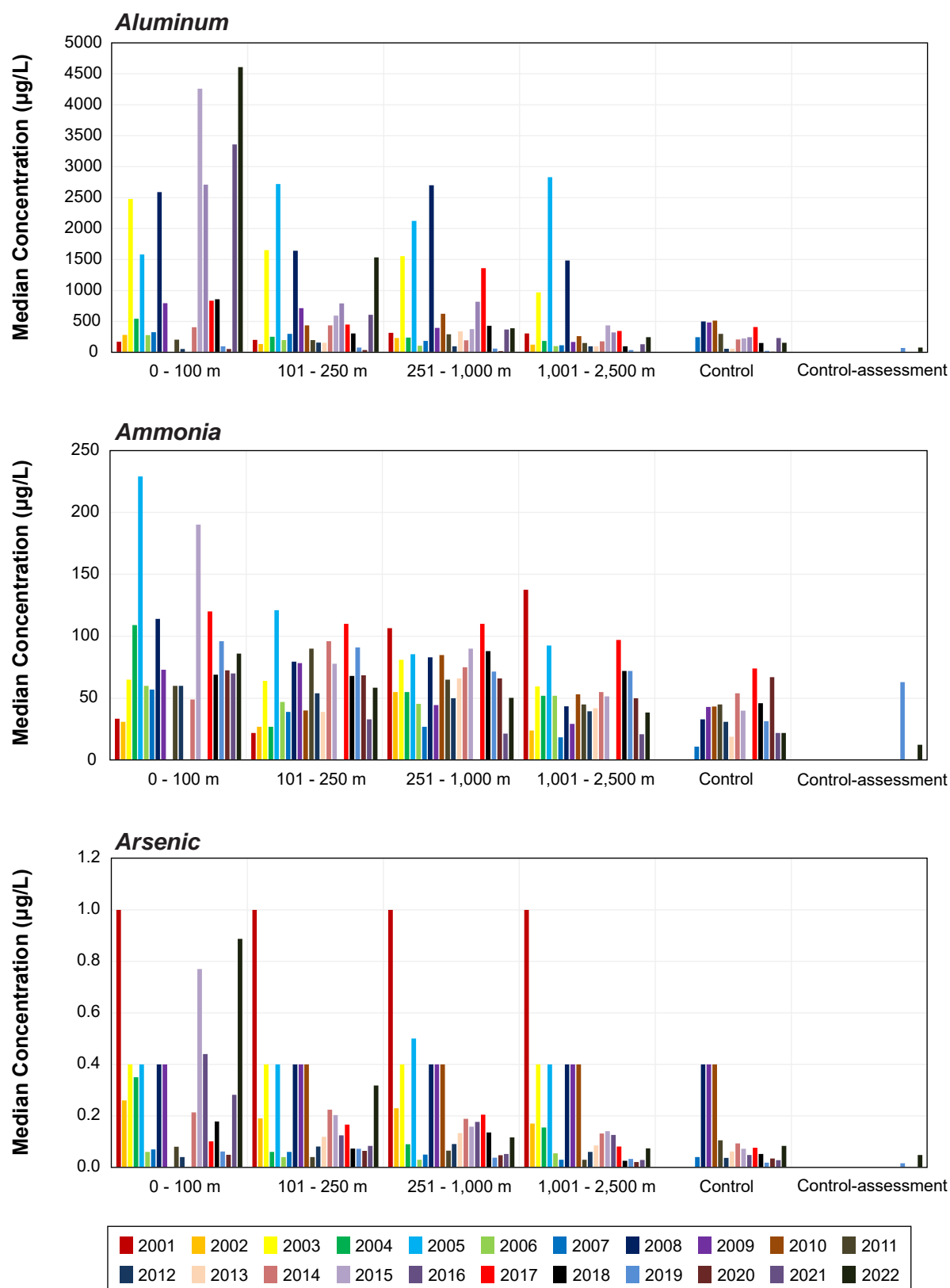
3.3.1 Aluminum

Median aluminum concentrations in 2022 were the highest on record (since 2001) within the 0 to 100 m zone and considerably higher than 2019 to 2021 records in the other zones (Figure 3.3-2). Aluminum areal deposition rates measured in 2022 ranged from 0.04 mg/dm²/y at FFA-4 from the control-assessment stations to 17.1 mg/dm²/y at station SS3-6 in the 0 to 100 m zone (Table 3-1). All 2022 aluminum concentrations except SS3-6 were below the EQC concentration specified in the Water Licence for maximum grab sample concentrations (3,000 µg/L; Figure 3.3-2). The concentration at SS3-6 was 4,610 µg/L.



Notes: Values used for the 0-100 m zone represent one sample rather than the median.
 Cadmium values in all zones equal or less than 0.2 µg/dm²/year.
 Across stations, the distance from mining operations ranged from approximately 26 m to 2,175 m for the monitoring stations, from 3,042 m to 4,802 m for the control stations and from 7,614 m to 27,909 m for the control assessment sites.

Figure 3.3-1: Snow Water Chemistry Results: Aluminum, Ammonia, Arsenic, Cadmium, Chromium, Copper, Lead, Nitrite, Nickel, Phosphorous and Zinc, 2022



Notes: Values used for the 0-100 m zone represent one sample rather than the median.
EQC (µg/L) = 3000 for Aluminum, 12000 for Ammonia, and 100 for Arsenic.
AEMP locations added in 2019 and 2022 only.
Across stations, the distance from mining operations ranged from approximately 26 m to 2,175 m for the monitoring stations, from 3,042 m to 4,802 m for the control stations and from 7,614 m to 27,909 m for the control assessment sites.

Figure 3.3-2: Snow Water Chemistry Results: Aluminum, Ammonia and Arsenic, 2001 to 2022

3.3.2 Ammonia

Ammonia areal deposition rates measured in 2022 ranged from 0.005 mg/dm²/y at SSC-1 station in the control zone to 0.32 mg/dm²/y at SS3-6 station in the 101 to 250 m zone (Table 3-1). The 2022 median concentrations in all zones were slightly higher than 2021 but similar to historical data (Figure 3.3-2). The 2022 ammonia areal deposition rates varied little among zones except for zone 0 to 100 m, which had relatively high deposition rates (Figure 3.3-1). All 2022 and historical ammonia concentrations were well below the EQC specified in the Water Licence for maximum grab sample concentrations (Figure 3.3-2).

3.3.3 Arsenic

Arsenic areal deposition rates measured in 2022 ranged from less than the analytical detection limit at FFA-4 from the control-assessment stations to 0.00033 mg/dm²/y at SS3-6 in the 0 to 100 m zone (Table 3-1). Arsenic 2022 areal deposition rates decreased with increasing distance from the Project footprint (Figure 3.3-1). The 2022 median concentrations were considerably higher than 2019 to 2021 median concentrations (Figure 3.3-2) at all zones. All concentrations were well below the EQC specified in the Water Licence for maximum grab sample concentrations.

3.3.4 Cadmium

Cadmium areal deposition rates measured in 2022 ranged from less than the analytical detection limit at multiple stations to 0.0001 mg/dm²/y at SS3-6 in the 0 to 100 m zone (Table 3-1). Cadmium concentrations in 2022 were similar or less than historical median concentrations (Figure 3.3-3). All concentrations were well below the EQC specified in the Water Licence for maximum grab sample concentrations.

3.3.5 Chromium

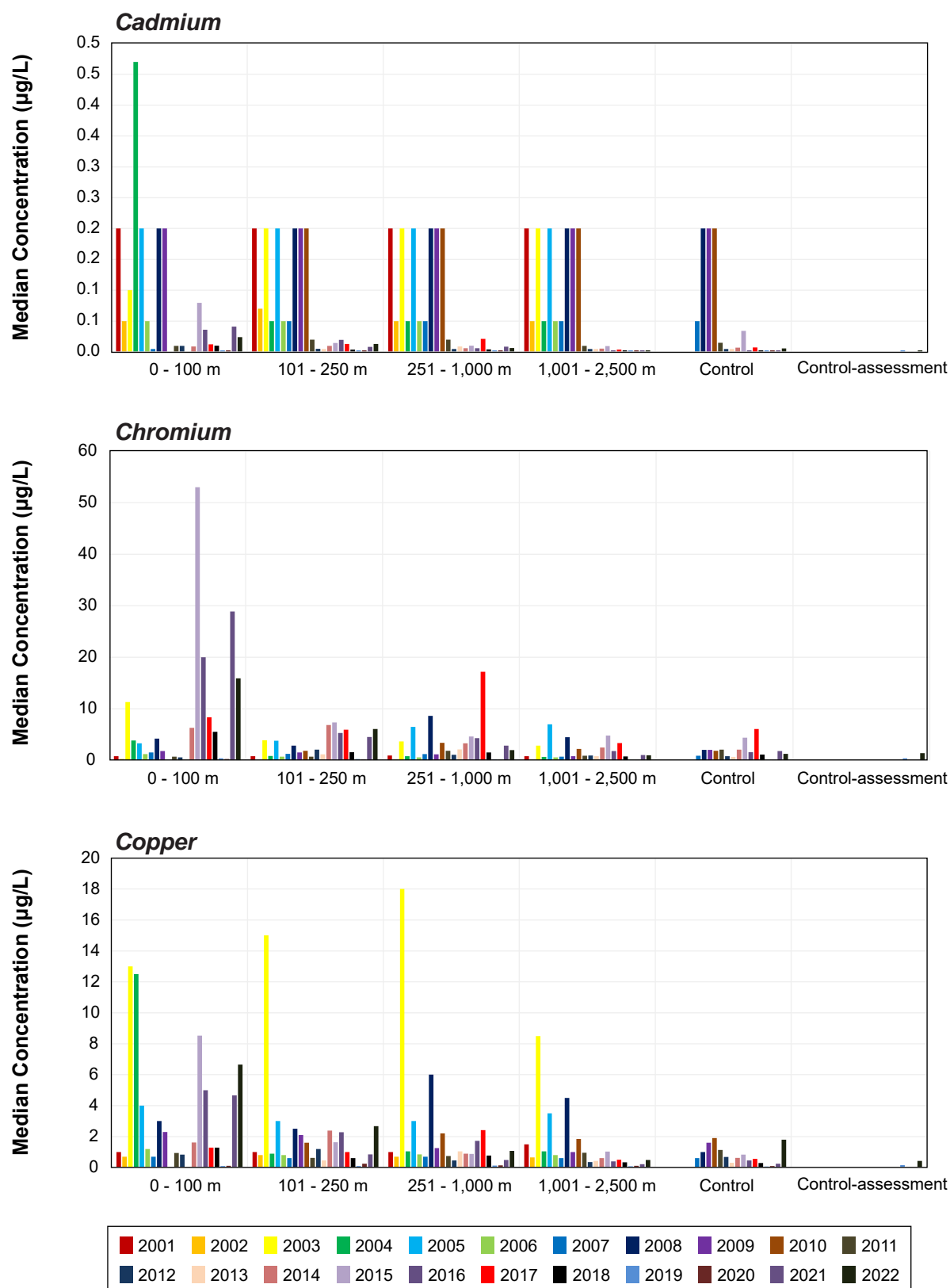
Chromium areal deposition rates measured in 2022 ranged from 0.001 mg/dm²/y at FFA-4 from the control-assessment stations to 0.059 mg/dm²/y at SS3-6 in the 0 to 100 m zone (Table 3-1; Figure 3.3-1). The 2022 median concentrations were comparable to historical concentrations in each zone (Figure 3.3-3). The 2022 chromium areal deposition rate decreased with increasing distance from the Project footprint (Figure 3.3-1), and none of the concentrations exceeded the EQC specified in the Water Licence for maximum grab sample concentrations (Figure 3.3-3).

3.3.6 Copper

Copper areal deposition rates measured in 2022 ranged from 0.0003 mg/dm²/y at FFA-4 from the control-assessment stations to 0.041 mg/dm²/y at SS5-3 in the 251 to 1,000 m zone (Table 3-1). Median 2022 copper concentrations were slightly higher than 2018 to 2021 levels (Figure 3.3-3). All concentrations were less than the EQC specified in the Water Licence for maximum grab sample concentrations.

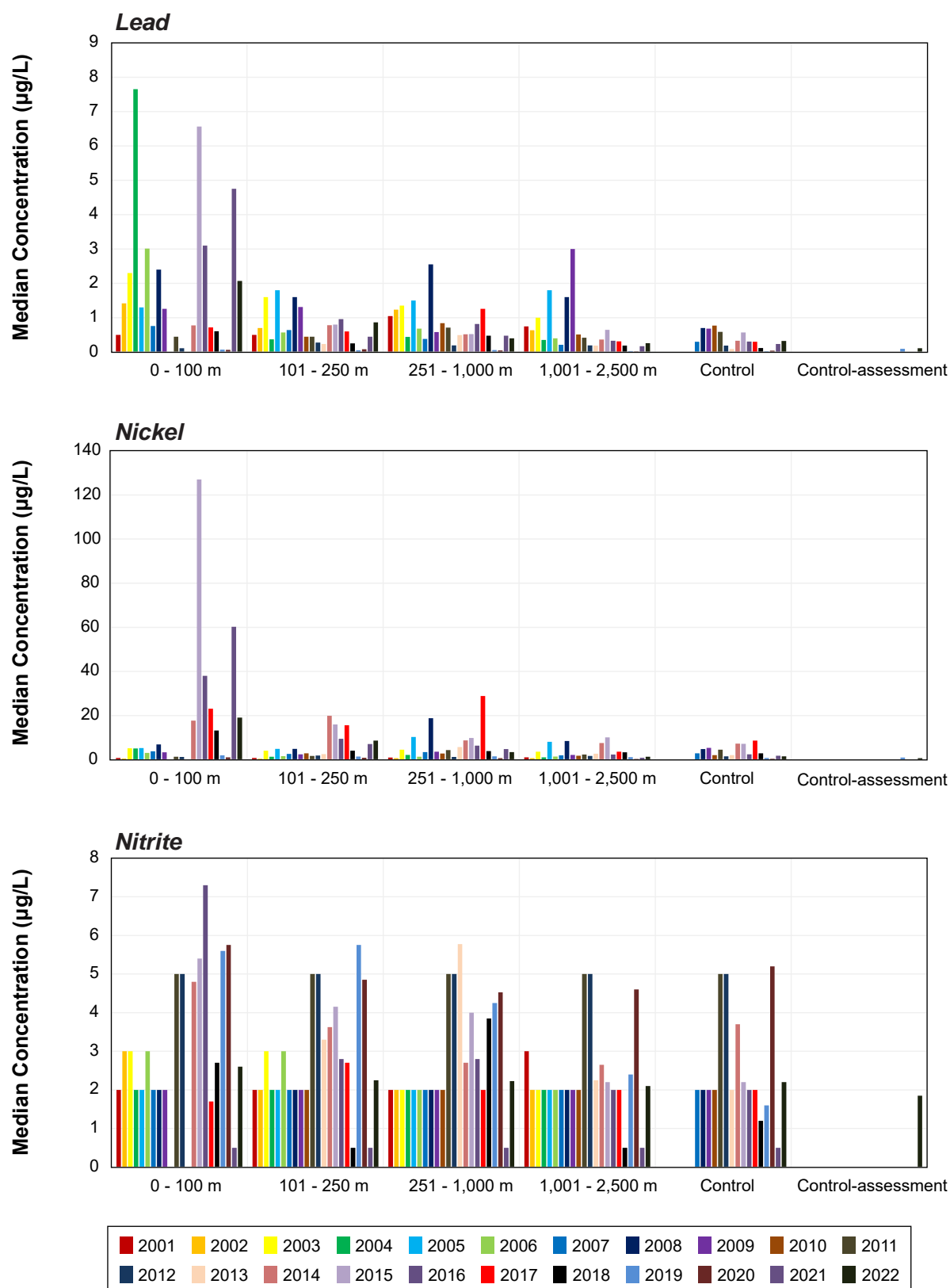
3.3.7 Lead

Lead areal deposition rates measured in 2022 ranged from 0.0002 mg/dm²/y at FFA-4 from the control-assessment stations to 0.013 mg/dm²/y at station SS5-3 in the 251 to 1,000 m zone (Table 3-1). Except in the 0 m to 100 m zone, the 2022 median lead concentrations were higher than the 2018 to 2021 levels (Figure 3.3-4). All concentrations were well below the EQC specified in the Water Licence for maximum grab sample concentrations.



Notes: Values used for the 0-100 m zone represent one sample rather than the median.
EQC (µg/L) = 3 for Cadmium, 40 for Chromium, and 40 for Copper.
AEMP locations added in 2019 and 2022 only.
Across stations, the distance from mining operations ranged from approximately 26 m to 2,175 m for the monitoring stations, from 3,042 m to 4,802 m for the control stations and from 7,614 m to 27,909 m for the control assessment sites.

Figure 3.3-3: Snow Water Chemistry Results: Cadmium, Chromium and Copper, 2001 to 2022



Notes: Values used for the 0-100 m zone represent one sample rather than the median.
EQC (µg/L) = 20 for Lead, 100 for Nickel, and 2000 for Nitrite.
AEMP locations added in 2019 (except Nitrite) and 2022 only.
Across stations, the distance from mining operations ranged from approximately 26 m to 2,175 m for the monitoring stations, from 3,042 m to 4,802 m for the control stations and from 7,614 m to 27,909 m for the control assessment sites.

Figure 3.3-4: Snow Water Chemistry Results: Lead, Nickel and Nitrite, 2001 to 2022

3.3.8 Nickel

Nickel areal deposition rates measured in 2022 ranged from 0.0005 mg/dm²/y at FFA-4 from the control-assessment stations to 0.082 mg/dm²/y at station SS5-3 in the 251 to 1,000 m zone (Table 3-1). The 2022 median concentrations were comparable to historical levels in all zones (Figures 3.3-4), with little variance between the zones (Figure 3.3-1). All concentrations were well below than the EQC specified in the Water Licence for maximum grab sample concentrations.

3.3.9 Nitrite

Nitrite areal deposition rate measured in 2022 ranged from less than the analytical detection limit at multiple control-assessment stations to 0.017 mg/dm²/y at the SS5-3 station in the 251 m to 1,000 m zone (Table 3-1). Nitrite 2022 areal deposition rate had little variance between all zones (Figure 3.3-1). The median 2022 Nitrite concentrations were higher than in 2021 but comparable to historical levels. All concentrations were well below the EQC specified in the Water Licence for maximum grab sample concentrations.

3.3.10 Phosphorus

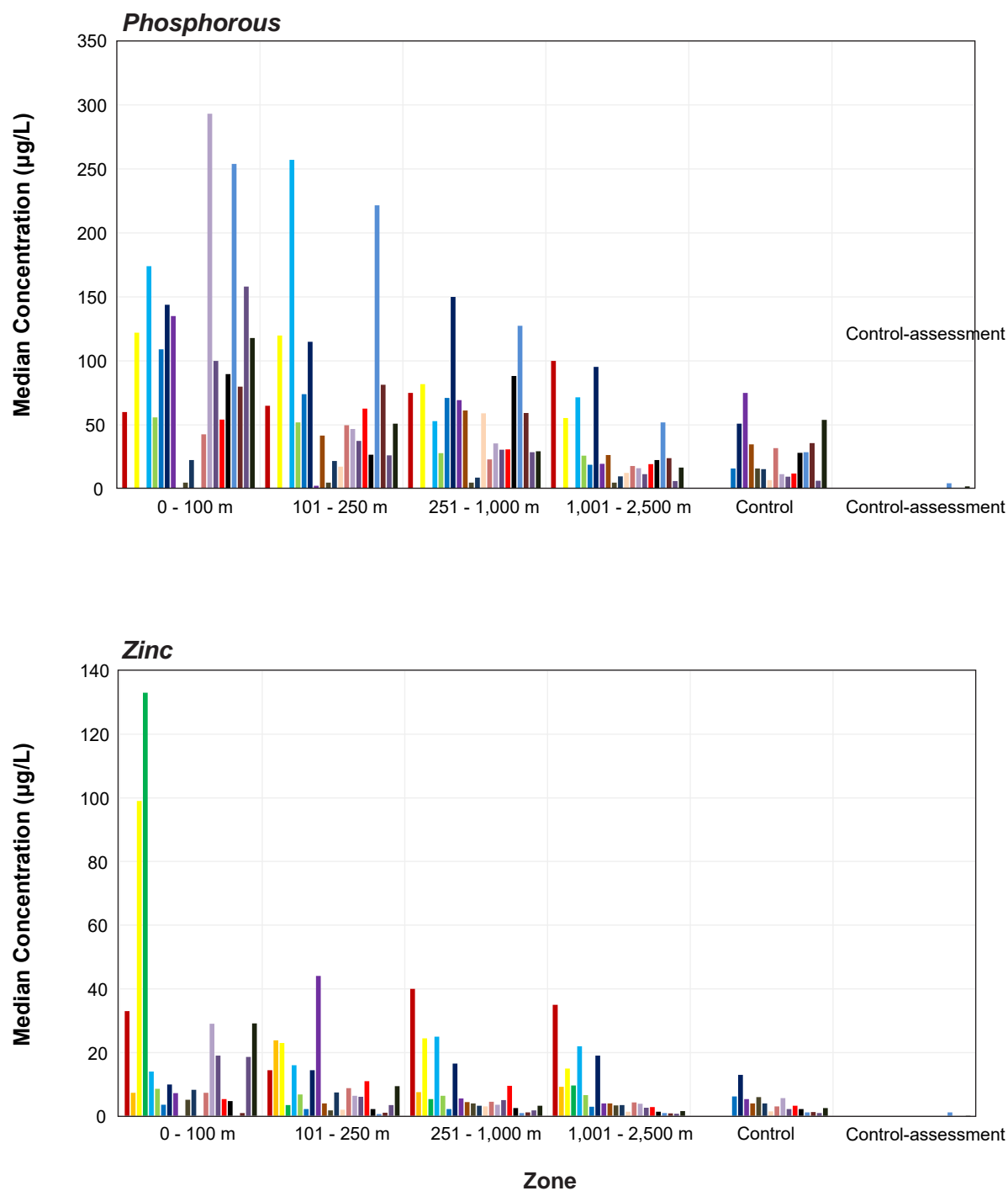
Phosphorus areal deposition rates measured in 2022 ranged from 0.002 mg/dm²/y at FFA-4 station from the control-assessment stations to 0.437 mg/dm²/y at station SS3-6 in the 0 m to 100 m zone (Table 3-1). 2022 phosphorous areal deposition rates decreased with distance from the Project (Figure 3.3-1) and were generally comparable to historical rates (Figure 3.3-5). Although the Water Licence has a load limit for phosphorus, there is no EQC specified for this parameter.

3.3.11 Zinc

Zinc areal deposition rates measured in 2022 ranged from 0.0001 mg/dm²/y at FFA-4 station from the control-assessment stations to 0.108 mg/dm²/y at SS3-6 station in the 0 m to 100 m zone (Table 3-1). 2022 zinc areal deposition rates decreased with increasing distance from the Project (Figure 3.3-1). The 2022 median zinc concentrations were slightly higher than 2018 to 2021 levels in all zones (Figure 3.3-5). The maximum zinc concentration in 2022 recorded at SS3-6 (29 µg/L) was above the EQC specified in the Water Licence for maximum grab sample concentrations (20 µg/L).

3.4 Evaluation of Existing Control Sites

The lowest dustfall rates in 2022 were recorded at the control-assessment stations, particularly at FFA-4 station, which is the furthest station from the Project footprint. The lowest mean and median dustfall rate using both dustfall gauges and snow surveys was recorded in the control-assessment zone followed by the control zone (Table 3-1). All four control-assessment stations recorded the lowest dustfall rates compared to all other snow survey stations. The SS2-4 station from the 1,001 m to 2,500 m zone recorded a lower rate than all control sites. The SSC-3 and Dust C1 stations from the control zone recorded higher rates than several stations from the 1,001 m to 2,500 m and 251 m to 1,000 m zones, as well as higher rates than station SS2-1 from the 101 m to 250 m zone, which indicates that the dustfall rates at the control sites are potentially affected by the Project and these control sites may not be representative of background values. Similar results were found in the 2021 dustfall program (DDMI 2022); however, the control-assessment sites were not sampled in 2021. Concentrations of several snow water chemistry variables generally decreased with distance from mining activity indicating that snow chemistry concentrations for these variables are likely influenced by Project activity.



Notes: Values used for the 0-100 m zone represent one sample rather than the median.
 EQC (µg/L) = 20 for Zinc, no EQC specified for Phosphorous.
 AEMP locations added in 2019 and 2022 only.
 Across stations, the distance from mining operations ranged from approximately 26 m to 2,175 m for the monitoring stations, from 3,042 m to 4,802 m for the control stations and from 7,614 m to 27,909 m for the control assessment sites.

Figure 3.3-5: Snow Water Chemistry Results: Phosphorus and Zinc, 2001 to 2022

Appendix VI NPRI Air Emissions

Year	CAS Number	Substance	Units	Release to Air	
	2009 208-96-8	Acenaphthylene	kg		5.68
	2007 208-96-8	Acenaphthylene	kg		10.572
	2008 75-07-0	Acetaldehyde	tonnes	-	
	2008 107-02-8	Acrolein	tonnes		0.004
	2008 120-12-7	Anthracene	tonnes		0.001
	2022 NA - 02	Arsenic (and its compounds)	kg		4.041
	2021 NA - 02	Arsenic (and its compounds)	kg		2.512
	2020 NA - 02	Arsenic (and its compounds)	kg		2.981
	2019 NA - 02	Arsenic (and its compounds)	kg		3.445
	2018 NA - 02	Arsenic (and its compounds)	kg		4.521
	2017 NA - 02	Arsenic (and its compounds)	kg		5.72
	2016 NA - 02	Arsenic (and its compounds)	kg		4.324
	2015 NA - 02	Arsenic (and its compounds)	kg		4.026
	2014 NA - 02	Arsenic (and its compounds)	kg		0.91
	2013 NA - 02	Arsenic (and its compounds)	kg		0.979
	2012 NA - 02	Arsenic (and its compounds)	kg		0.797
	2011 NA - 02	Arsenic (and its compounds)	kg		0.801
	2010 NA - 02	Arsenic (and its compounds)	kg		0.004
	2009 NA - 02	Arsenic (and its compounds)	kg	-	
	2008 NA - 02	Arsenic (and its compounds)	kg	-	
	2007 NA - 02	Arsenic (and its compounds)	kg	-	
	2006 NA - 02	Arsenic (and its compounds)	kg	-	
	2008 71-43-2	Benzene	tonnes		0.369
	2022 NA - 03	Cadmium (and its compounds)	kg		3.057
	2021 NA - 03	Cadmium (and its compounds)	kg		3.028
	2020 NA - 03	Cadmium (and its compounds)	kg		3.147
	2019 NA - 03	Cadmium (and its compounds)	kg		2.746
	2018 NA - 03	Cadmium (and its compounds)	kg		9.087
	2017 NA - 03	Cadmium (and its compounds)	kg		3.6
	2016 NA - 03	Cadmium (and its compounds)	kg		2.55
	2015 NA - 03	Cadmium (and its compounds)	kg		2.05
	2014 NA - 03	Cadmium (and its compounds)	kg		2.29
	2013 NA - 03	Cadmium (and its compounds)	kg		2.6
	2012 NA - 03	Cadmium (and its compounds)	kg		3.11
	2011 NA - 03	Cadmium (and its compounds)	kg		2.92
	2010 NA - 03	Cadmium (and its compounds)	kg		1.58
	2009 NA - 03	Cadmium (and its compounds)	kg	-	
	2008 NA - 03	Cadmium (and its compounds)	kg	-	
	2007 NA - 03	Cadmium (and its compounds)	kg	-	
	2006 NA - 03	Cadmium (and its compounds)	kg	-	
	2022 630-08-0	Carbon monoxide	tonnes		757.823
	2021 630-08-0	Carbon monoxide	tonnes		712.933
	2020 630-08-0	Carbon monoxide	tonnes		800.643
	2019 630-08-0	Carbon monoxide	tonnes		718.989
	2018 630-08-0	Carbon monoxide	tonnes		662.478
	2017 630-08-0	Carbon monoxide	tonnes		674.82
	2016 630-08-0	Carbon monoxide	tonnes		619.91
	2015 630-08-0	Carbon monoxide	tonnes		589.69
	2014 630-08-0	Carbon monoxide	tonnes		587.76
	2013 630-08-0	Carbon monoxide	tonnes		679.07
	2012 630-08-0	Carbon monoxide	tonnes		669.13
	2011 630-08-0	Carbon monoxide	tonnes		738.69
	2010 630-08-0	Carbon monoxide	tonnes		904.06
	2009 630-08-0	Carbon monoxide	tonnes		801.77
	2008 630-08-0	Carbon monoxide	tonnes		749
	2007 630-08-0	Carbon monoxide	tonnes		1,320.10
	2006 630-08-0	Carbon monoxide	tonnes		372.737
	2005 630-08-0	Carbon monoxide	tonnes		315.732
	2004 630-08-0	Carbon monoxide	tonnes		285.177
	2022 NA - 05	Cobalt (and its compounds)	kg		0.003
	2021 NA - 05	Cobalt (and its compounds)	kg		0.003
	2020 NA - 05	Cobalt (and its compounds)	kg		0.004
	2019 NA - 05	Cobalt (and its compounds)	kg		0.005
	2018 NA - 05	Cobalt (and its compounds)	kg		0.007
	2017 NA - 05	Cobalt (and its compounds)	kg	-	
	2016 NA - 05	Cobalt (and its compounds)	kg	-	
	2015 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2014 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2013 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2012 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2011 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2010 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2009 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2008 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2007 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2006 NA - 05	Cobalt (and its compounds)	tonnes	-	
	2022 NA - 06	Copper (and its compounds)	tonnes		0.001
	2021 NA - 06	Copper (and its compounds)	tonnes		0.001
	2020 NA - 06	Copper (and its compounds)	tonnes		0.001
	2019 NA - 06	Copper (and its compounds)	tonnes		0.001
	2018 NA - 06	Copper (and its compounds)	tonnes		0.001
	2017 NA - 06	Copper (and its compounds)	tonnes		0.001
	2016 NA - 06	Copper (and its compounds)	tonnes		0.001
	2015 NA - 06	Copper (and its compounds)	tonnes		0
	2014 NA - 06	Copper (and its compounds)	tonnes		0.001
	2013 NA - 06	Copper (and its compounds)	tonnes		0.001
	2012 NA - 06	Copper (and its compounds)	tonnes	-	
	2011 NA - 06	Copper (and its compounds)	tonnes		0.001
	2010 NA - 06	Copper (and its compounds)	tonnes	-	

2009 NA - 06	Copper (and its compounds)	tonnes	-	
2008 NA - 06	Copper (and its compounds)	tonnes	-	
2007 NA - 06	Copper (and its compounds)	tonnes	-	
2006 NA - 06	Copper (and its compounds)	tonnes	-	
2022 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2021 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2020 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2019 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2018 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2017 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2016 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2015 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2014 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2013 NA - D/F	Dioxins and furans - total	g TEQ		0.0005
2012 NA - D/F	Dioxins and furans - total	g TEQ		0.0007
2011 NA - D/F	Dioxins and furans - total	g TEQ		0.0007
2009 NA - D/F	Dioxins and furans - total	g TEQ	-	
2008 NA - D/F	Dioxins and furans - total	g TEQ	-	
2007 NA - D/F	Dioxins and furans - total	g TEQ	-	
2006 NA - D/F	Dioxins and furans - total	g TEQ	-	
2005 NA - D/F	Dioxins and furans - total	g TEQ	-	
2006 74-85-1	Ethylene	tonnes		47.39
2005 74-85-1	Ethylene	tonnes		40.142
2004 74-85-1	Ethylene	tonnes		36.257
2009 86-73-7	Fluorene	kg		8.27
2007 86-73-7	Fluorene	kg		14.66
2008 50-00-0	Formaldehyde	tonnes		0.038
2022 118-74-1	Hexachlorobenzene	grams	-	
2021 118-74-1	Hexachlorobenzene	grams	-	
2020 118-74-1	Hexachlorobenzene	grams	-	
2019 118-74-1	Hexachlorobenzene	grams	-	
2018 118-74-1	Hexachlorobenzene	grams	-	
2017 118-74-1	Hexachlorobenzene	grams	-	
2016 118-74-1	Hexachlorobenzene	grams	-	
2015 118-74-1	Hexachlorobenzene	grams	-	
2014 118-74-1	Hexachlorobenzene	grams	-	
2013 118-74-1	Hexachlorobenzene	grams	-	
2012 118-74-1	Hexachlorobenzene	grams	-	
2011 118-74-1	Hexachlorobenzene	grams		0
2009 118-74-1	Hexachlorobenzene	grams	-	
2008 118-74-1	Hexachlorobenzene	grams	-	
2007 118-74-1	Hexachlorobenzene	grams	-	
2006 118-74-1	Hexachlorobenzene	grams	-	
2005 118-74-1	Hexachlorobenzene	grams	-	
2022 7647-01-0	Hydrochloric acid	tonnes	-	
2021 7647-01-0	Hydrochloric acid	tonnes	-	
2020 7647-01-0	Hydrochloric acid	tonnes	-	
2019 7647-01-0	Hydrochloric acid	tonnes	-	
2018 7647-01-0	Hydrochloric acid	tonnes	-	
2017 7647-01-0	Hydrochloric acid	tonnes	-	
2016 7647-01-0	Hydrochloric acid	tonnes	-	
2015 7647-01-0	Hydrochloric acid	tonnes	-	
2022 NA - 08	Lead (and its compounds)	kg		36.571
2021 NA - 08	Lead (and its compounds)	kg		41.096
2020 NA - 08	Lead (and its compounds)	kg		41.978
2019 NA - 08	Lead (and its compounds)	kg		36.253
2018 NA - 08	Lead (and its compounds)	kg		139
2017 NA - 08	Lead (and its compounds)	kg		49.59
2016 NA - 08	Lead (and its compounds)	kg		28.56
2015 NA - 08	Lead (and its compounds)	kg		23.51
2014 NA - 08	Lead (and its compounds)	kg		29.55
2013 NA - 08	Lead (and its compounds)	kg		34.16
2012 NA - 08	Lead (and its compounds)	kg		44.86
2011 NA - 08	Lead (and its compounds)	kg		41.46
2010 NA - 08	Lead (and its compounds)	kg		27.07
2009 NA - 08	Lead (and its compounds)	kg	-	
2008 NA - 08	Lead (and its compounds)	kg	-	
2007 NA - 08	Lead (and its compounds)	kg	-	
2006 NA - 08	Lead (and its compounds)	kg	-	
2022 NA - 10	Mercury (and its compounds)	kg		1.823
2021 NA - 10	Mercury (and its compounds)	kg		1.853
2020 NA - 10	Mercury (and its compounds)	kg		1.891
2019 NA - 10	Mercury (and its compounds)	kg		1.635
2018 NA - 10	Mercury (and its compounds)	kg		4.96
2017 NA - 10	Mercury (and its compounds)	kg		1.97
2016 NA - 10	Mercury (and its compounds)	kg		1.36
2015 NA - 10	Mercury (and its compounds)	kg		1.25
2014 NA - 10	Mercury (and its compounds)	kg		1.54
2013 NA - 10	Mercury (and its compounds)	kg		1.73
2012 NA - 10	Mercury (and its compounds)	kg		1.94
2011 NA - 10	Mercury (and its compounds)	kg		1.83
2010 NA - 10	Mercury (and its compounds)	kg		0.84
2009 NA - 10	Mercury (and its compounds)	kg	-	
2008 NA - 10	Mercury (and its compounds)	kg	-	
2007 NA - 10	Mercury (and its compounds)	kg	-	
2006 NA - 10	Mercury (and its compounds)	kg	-	
2022 NA - 11	Nickel (and its compounds)	tonnes		0.001
2021 NA - 11	Nickel (and its compounds)	tonnes		0.001
2020 NA - 11	Nickel (and its compounds)	tonnes		0.001
2019 NA - 11	Nickel (and its compounds)	tonnes		0.001

2018 NA - 11	Nickel (and its compounds)	tonnes	0.001
2017 NA - 11	Nickel (and its compounds)	tonnes	0.001
2016 NA - 11	Nickel (and its compounds)	tonnes	0.001
2015 NA - 11	Nickel (and its compounds)	tonnes	0.001
2014 NA - 11	Nickel (and its compounds)	tonnes	0.001
2013 NA - 11	Nickel (and its compounds)	tonnes	0.001
2012 NA - 11	Nickel (and its compounds)	tonnes	-
2011 NA - 11	Nickel (and its compounds)	tonnes	0.006
2010 NA - 11	Nickel (and its compounds)	tonnes	-
2009 NA - 11	Nickel (and its compounds)	tonnes	-
2008 NA - 11	Nickel (and its compounds)	tonnes	-
2007 NA - 11	Nickel (and its compounds)	tonnes	-
2006 NA - 11	Nickel (and its compounds)	tonnes	-
2022 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,347.35
2021 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,277.00
2020 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,376.25
2019 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,320.06
2018 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,185.96
2017 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,274.59
2016 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,335.59
2015 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,221.96
2014 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,214.18
2013 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,293.45
2012 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,273.65
2011 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,551.78
2010 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,313.12
2009 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	2,085.77
2008 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	1,606.67
2007 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	4,235.88
2006 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	1,731.63
2005 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	1,466.80
2004 11104-93-1	Nitrogen oxides (expressed as nitrogen dioxide)	tonnes	1,324.85
2011 85-01-8	Phenanthrene	kg	26.3
2010 85-01-8	Phenanthrene	kg	28.16
2009 85-01-8	Phenanthrene	kg	25.38
2007 85-01-8	Phenanthrene	kg	46.73
2022 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	424.974
2021 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	324.515
2020 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	326.816
2019 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	363.993
2018 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	425.864
2017 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	238.371
2016 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	328.16
2015 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	296.22
2014 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	171.7
2013 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	155.94
2012 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	313.74
2011 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	1,145.94
2010 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	678
2009 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	481.04
2008 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	729.272
2007 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	3,178.04
2006 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	121.845
2005 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	103.211
2004 NA - M09	PM10 - Particulate Matter <= 10 Micrometers	tonnes	93.223
2022 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	96.433
2021 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	72.543
2020 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	73.553
2019 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	76.108
2018 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	87.419
2017 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	56.43
2016 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	65.3
2015 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	66.44
2014 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	46.81
2013 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	45.96
2012 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	63.35
2011 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	74.42
2010 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	124
2009 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	82.33
2008 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	96.605
2007 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	467.415
2006 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	121.845
2005 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	103.211
2004 NA - M10	PM2.5 - Particulate Matter <= 2.5 Micrometers	tonnes	93.223
2011 115-07-1	Propylene	tonnes	1.791
2010 115-07-1	Propylene	tonnes	1.98
2009 115-07-1	Propylene	tonnes	1.74
2008 115-07-1	Propylene	tonnes	1.328
2007 115-07-1	Propylene	tonnes	3.196
2006 115-07-1	Propylene	tonnes	28.566
2005 115-07-1	Propylene	tonnes	24.197
2004 115-07-1	Propylene	tonnes	21.855
2022 NA - 12	Selenium (and its compounds)	kg	0.004
2021 NA - 12	Selenium (and its compounds)	kg	0.003
2020 NA - 12	Selenium (and its compounds)	kg	0.003
2019 NA - 12	Selenium (and its compounds)	kg	0.003
2018 NA - 12	Selenium (and its compounds)	kg	0.003
2017 NA - 12	Selenium (and its compounds)	kg	0.003
2016 NA - 12	Selenium (and its compounds)	kg	0.003
2015 NA - 12	Selenium (and its compounds)	kg	0.003

2014 NA - 12	Selenium (and its compounds)	kg	0.003
2013 NA - 12	Selenium (and its compounds)	kg	0.004
2012 NA - 12	Selenium (and its compounds)	kg	0.035
2011 NA - 12	Selenium (and its compounds)	kg	0.015
2022 7446-09-5	Sulphur dioxide	tonnes	5.976
2021 7446-09-5	Sulphur dioxide	tonnes	8.175
2020 7446-09-5	Sulphur dioxide	tonnes	7.303
2019 7446-09-5	Sulphur dioxide	tonnes	5.159
2018 7446-09-5	Sulphur dioxide	tonnes	5.362
2017 7446-09-5	Sulphur dioxide	tonnes	3.022
2016 7446-09-5	Sulphur dioxide	tonnes	0.85
2015 7446-09-5	Sulphur dioxide	tonnes	0.77
2014 7446-09-5	Sulphur dioxide	tonnes	0.72
2013 7446-09-5	Sulphur dioxide	tonnes	3.25
2012 7446-09-5	Sulphur dioxide	tonnes	3.82
2011 7446-09-5	Sulphur dioxide	tonnes	26.06
2010 7446-09-5	Sulphur dioxide	tonnes	36.83
2009 7446-09-5	Sulphur dioxide	tonnes	15.53
2008 7446-09-5	Sulphur dioxide	tonnes	9.495
2007 7446-09-5	Sulphur dioxide	tonnes	132.257
2006 7446-09-5	Sulphur dioxide	tonnes	113.807
2005 7446-09-5	Sulphur dioxide	tonnes	87.072
2004 7446-09-5	Sulphur dioxide	tonnes	87.072
2008 108-88-3	Toluene	tonnes	0.134
2022 NA - M08	Total particulate matter	tonnes	1,007.76
2021 NA - M08	Total particulate matter	tonnes	814.77
2020 NA - M08	Total particulate matter	tonnes	815.911
2019 NA - M08	Total particulate matter	tonnes	964.328
2018 NA - M08	Total particulate matter	tonnes	1,194.70
2017 NA - M08	Total particulate matter	tonnes	726.051
2016 NA - M08	Total particulate matter	tonnes	1,047.65
2015 NA - M08	Total particulate matter	tonnes	781.93
2014 NA - M08	Total particulate matter	tonnes	511.98
2013 NA - M08	Total particulate matter	tonnes	451.31
2012 NA - M08	Total particulate matter	tonnes	984.57
2011 NA - M08	Total particulate matter	tonnes	1,145.41
2010 NA - M08	Total particulate matter	tonnes	2,065.22
2009 NA - M08	Total particulate matter	tonnes	1,437.58
2008 NA - M08	Total particulate matter	tonnes	2,293.64
2007 NA - M08	Total particulate matter	tonnes	6,480.06
2006 NA - M08	Total particulate matter	tonnes	121.845
2005 NA - M08	Total particulate matter	tonnes	103.211
2004 NA - M08	Total particulate matter	tonnes	93.223
2022 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	58.671
2021 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	56.625
2020 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	59.361
2019 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	58.431
2018 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	55.345
2017 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	57.82
2016 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	59.51
2015 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	56.56
2014 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	56.24
2013 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	57.99
2012 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	58.13
2011 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	54.27
2010 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	84.33
2009 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	55.55
2008 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	38.985
2007 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	208.473
2006 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	141.343
2005 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	119.727
2004 NA - M16	Volatile Organic Compounds (VOCs)	tonnes	108.14
2008 1330-20-7	Xylene (all isomers)	tonnes	0.092
2022 NA - 14	Zinc (and its compounds)	tonnes	0.001
2021 NA - 14	Zinc (and its compounds)	tonnes	0.001
2020 NA - 14	Zinc (and its compounds)	tonnes	0.001
2019 NA - 14	Zinc (and its compounds)	tonnes	0.001
2018 NA - 14	Zinc (and its compounds)	tonnes	0.001
2017 NA - 14	Zinc (and its compounds)	tonnes	0.001
2016 NA - 14	Zinc (and its compounds)	tonnes	0.001
2015 NA - 14	Zinc (and its compounds)	tonnes	0.001
2014 NA - 14	Zinc (and its compounds)	tonnes	0.001
2013 NA - 14	Zinc (and its compounds)	tonnes	0.001
2012 NA - 14	Zinc (and its compounds)	tonnes	0.001
2011 NA - 14	Zinc (and its compounds)	tonnes	0.001
2010 NA - 14	Zinc (and its compounds)	tonnes	-
2009 NA - 14	Zinc (and its compounds)	tonnes	-
2008 NA - 14	Zinc (and its compounds)	tonnes	-
2007 NA - 14	Zinc (and its compounds)	tonnes	-
2006 NA - 14	Zinc (and its compounds)	tonnes	-