

## **Appendix I-1**

Traditional Knowledge Panel Recommendation Tracking.

DDMI TK Panel Recommendations and Response Tracking - Wildlife Monitoring & Management						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
Assigned by DDMI unless otherwise indicated in report	Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.	Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.	Context should contain all the information needed to understand the rationale for the accompanying recommendation.	Distinct values/concepts that are contained in Traditional Knowledge and can help to guide decision process	Responses should be as specific as possible, relating the issues raised in the "recommendation".	Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.
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.	Respect Reciprocity Traditional Laws	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.	Involve community members in caribou monitoring and share knowledge of different practices relating to wildlife.
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.	Stewardship Intergenerational Social	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.	When possible, invite Elders and Youth to participate in Diavik activities.
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.	Reciprocity	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.	N/A
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.	Traditional laws	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.	N/A
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.	Reciprocity	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.	Continue to distribute annual reports (which include executive summaries) to community organizations and visit communities as available. Investigate and request feedback on more appropriate methods for communication of monitoring programs & results.

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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.	Respect	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.	Confirm if the recommendation is to Diavik or to TK Panel members/facilitators.
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.	Reciprocity	An effort to take photos displaying various caribou behaviours was undertaken during the 2012 and 2013 monitoring seasons.	DDMI staff are evaluating opportunities to incorporate visual tools into the SoP.
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.	Reciprocity	Most caribou monitoring is completed from August - October. DDMI brings Elders to site to participate in these monitoring programs each year.	Investigate options for transitioning caribou behaviour monitoring to communities, while continuing to include Elders in current monitoring programs.
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.	Reciprocity	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.	N/A
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.	Social	Recommendation is outside the scope of the Caribou Behavioural Monitoring SoP. Diavik can supply the field sheets to communities, if requested.	N/A
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.	Reciprocity	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).	Consider changes to SoP based on feedback from community members.
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.	Reciprocity	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.	Plans to review suggestions and improve the information in these categories is being considered by Diavik.

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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.	Symbolism	This may be beneficial in the future, if caribou behavioural monitoring were to transition to communities.	N/A
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.	Stewardship Capturing knowledge	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.	N/A
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.	Stewardship Recording knowledge Reciprocity	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.	N/A
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.	Stewardship	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.	N/A
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.	Stewardship	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.	A future Panel session to discuss closure monitoring is expected and caribou will be a part of that discussion.
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.	Stewardship	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.	Confirm TK Panel support for a 2016 spring session on wildlife monitoring and management at closure. If supported, DDMI to plan session for April/May 2016.

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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.	Stewardship Seasonality	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.	DDMI to consider design features that support this recommendation during the next major update to the ICRP (2016).
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.	Stewardship Recording knowledge	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.	Confirm TK Panel support for a 2016 spring session on wildlife monitoring and management at closure. If supported, DDMI to plan session for April/May 2016.

**DDMI TK Panel Recommendations and Response Tracking - Landscape & Vegetation (may include references to wildlife/wildlife habitat)**

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
Assigned by DDMI unless otherwise indicated in report	Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.	Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.	Context should contain all the information needed to understand the rationale for the accompanying recommendation.	Distinct values/c oncepts that are contained in Traditional Knowledge and can help to guide decision process	Responses should be as specific as possible, relating the issues raised in the "recommendation".	Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.
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.	Respect Safety	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.	Diavik plans to begin a toxicological study on PK material in 2015.
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.	Reciprocity Trust Shared learning	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.	Revise the document "Working Together" (previously created by the Panel under EMAB) to reflect the relationship of Diavik administering the Panel.
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 inbetween 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.	Respect Stewardship Reciprocity	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.	Work with communities, regulators and potentially other industry representatives to determine wildlife use preferences for the area of the mine after closure.
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.	Recording knowledge Respect	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.	DDMI plans to review historical information for the LDG area in relation to caribou use and movement. Literature review of TK relating to plants in the Lac de Gras area was completed in October 2014.
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.	Seasonality	Diavik is interested in further exploring ideas for closure monitoring with communities. Seasonality should be accounted for in these discussions.	Plan for a discussion on environmental monitoring at closure with the TK Panel.

DDMI TK Panel Recommendations and Response Tracking - Landscape & Vegetation (may include references to wildlife/wildlife habitat)						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Reciprocity Safety	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.	Review such considerations prior to finalizing this aspect of the closure plan.

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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.	Respect Reciprocity	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.	Looking forward, DDMI plans to use this response tracking system to document use of TK/IQ recommendations from the Panel. Past TK/IQ projects will be reviewed as necessary for individual topic discussions, e.g. re-vegetation.
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 in tact 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.	Respect Safety	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.	N/A
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.	Stewardship Reciprocity	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.	Determine salvage options for mine site materials on a case-by-case basis.
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).	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." 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.	Stewardship Natural condition Experiential learning Respect	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.	DDMI to consider design features that support this recommendation during the next major update to the ICRP (2016).
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).	Experiential learning Natural condition	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.	DDMI to review questions posed to community members in the lichen TK study with the TK Panel and determine if any changes are needed to reflect the Panel's recommendation.



DDMI TK Panel Recommendations and Response Tracking - Landscape & Vegetation (may include references to wildlife/wildlife habitat)						
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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.	Reciprocity Natural condition Respect	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.	Communicate results of plant toxicity testing to Panel once obtained.
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.	Respect	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.	DDMI to consider design features that support this recommendation during the next major update to the ICRP (2016).
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.	Respect Experiential learning	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.	DDMI to consider design features that support this recommendation during the next major update to the ICRP (2016).
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.	Natural condition Seasonality	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.	N/A
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.	Natural condition Seasonality	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.	N/A
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.	Natural condition	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.	N/A

DDMI TK Panel Recommendations and Response Tracking - Landscape & Vegetation (may include references to wildlife/wildlife habitat)						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Intergenerational Stewardship Recording knowledge	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.	DDMI to use these maps as a basis for community engagement in relation to re-vegetation and wildlife use around the mine site at closure.
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).	Recording knowledge Respect Natural condition	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.	Confirm TK Panel support for a 2016 spring session on wildlife monitoring and management at closure. If supported, DDMI to plan session for April/May 2016 and provide maps and TK shared on caribou trails during the Environmental Assessment.
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.	Respect Stewardship Recording knowledge Experiential learning	Pending	Pending
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.	Experiential learning Reciprocity Safety	Pending	Pending

**DDMI TK Panel Recommendations and Response Tracking - North Country Rock Pile (NCRP)**

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
<i>Assigned by DDMI unless otherwise indicated in report</i>	<i>Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.</i>	<i>Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.</i>	<i>Context should contain all the information needed to understand the rationale for the accompanying recommendation.</i>	<i>Distinct values/ concepts that are contained in Traditional Knowledge and can help to guide decision process</i>	<i>Responses should be as specific as possible, relating the issues raised in the "recommendation".</i>	<i>Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.</i>
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.	Stewardship	Diavik is not planning to have a water pond on top of the rock pile at closure.	N/A
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.	Stewardship	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.	N/A
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).	Respect Stewardship	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.	N/A
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.	Stewardship	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.	N/A

**DDMI TK Panel Recommendations and Response Tracking - North Country Rock Pile (NCRP)**

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Seasonality Stewardship Respect	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.	Diavik plans to begin a toxicological study on PK material in 2015.
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.	Stewardship Reciprocity	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.	N/A
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.	Stewardship Respect	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.	N/A
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.	Nature is self-healing Stewardship	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.	Investigate areas that have naturally revegetated around the mine site; evaluate species and substrates.
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.	Stewardship	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.	Determine preferred drainage pathways, and possibly associated plant life, that would result in water that is safe for humans and wildlife.

DDMI TK Panel Recommendations and Response Tracking - North Country Rock Pile (NCRP)						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Stewardship	Not supported as current closure plans for the rock pile do not include revegetation.	N/A
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.	Nature is self-healing Stewardship	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.	N/A
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.	Stewardship Seasonality	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.	DDMI to consider design features that support this recommendation during the next major update to the ICRP (2016).
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.	Stewardship Intergenerational Seasonality	Pending	Pending

DDMI TK Panel Recommendations and Response Tracking - Processed Kimberlite Containment (PKC) Area						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
Assigned by DDMI unless otherwise indicated in report	Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.	Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.	Context should contain all the information needed to understand the rationale for the accompanying recommendation.	Distinct values/concepts that are contained in Traditional Knowledge and can help to guide decision process	Responses should be as specific as possible, relating the issues raised in the "recommendation".	Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.
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.	Stewardship Respect	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.	Determine relative importance of overall function compared to specific material use with communities.
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.	Natural condition	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.	N/A
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.	Natural condition Nature is self-healing	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.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.
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.	Natural condition	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.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.
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.	Natural condition	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.	N/A

**DDMI TK Panel Recommendations and Response Tracking - Processed Kimberlite Containment (PKC) Area**

<b>NUMBER</b>	<b>REFERENCE</b>	<b>RECOMMENDATION</b>	<b>CONTEXT</b>	<b>TK VALUE/CONCEPT</b>	<b>DDMI RESPONSE</b>	<b>DDMI ACTION ITEMS</b>
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.	Stewardship	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.	Diavik plans to begin a toxicological study on PK material in 2015.
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.	Stewardship	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.	Diavik plans to begin a toxicological study on PK material in 2015.
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.	Safety Respect	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.	DDMI conducted a literature review to identify examples of re-vegetation efforts undertaken in northern climates. Completed in October 2014.
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.	Safety	Another closure goal for Diavik is to have land areas that are physically stable and safe for people, wildlife and aquatic life.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.
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.	Natural condition	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.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.
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.	Natural condition	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.	N/A

**DDMI TK Panel Recommendations and Response Tracking - Processed Kimberlite Containment (PKC) Area**

<b>NUMBER</b>	<b>REFERENCE</b>	<b>RECOMMENDATION</b>	<b>CONTEXT</b>	<b>TK VALUE/CONCEPT</b>	<b>DDMI RESPONSE</b>	<b>DDMI ACTION ITEMS</b>
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.	Natural condition	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.	N/A
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.	Nature is self-healing	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.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.
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.	Natural condition	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.	N/A
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.	Natural condition	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.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.
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.	Safety Respect Stewardship	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.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.
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.	Safety Respect Stewardship	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.	In consultation with communities, conduct further research and advance the plan for the PKC closure concept approved by the WLWB in May 2014.



DDMI TK Panel Recommendations and Response Tracking - Processed Kimberlite Containment (PKC) Area						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Safety Respect Stewardship	This would be achieved with the current closure plan.	N/A
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.	Natural condition	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.	N/A
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.	Stewardship	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.	N/A
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.	Reciprocity	The options were reviewed with Panel members, though cost information was not available at the time the information was presented.	Diavik provided the Panel with the additional information requested.
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.	Stewardship	Should such measures be necessary in the future, DDMI would be willing to explore such options in cooperation with other mines.	N/A
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.	Stewardship	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.	DDMI to consider design features that support this recommendation during the next major update to the ICRP (2016).

DDMI TK Panel Recommendations and Response Tracking - Processed Kimberlite Containment (PKC) Area						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Stewardship Nature is self healing Natural condition	Pending	Pending

DDMI TK Panel Recommendations and Response Tracking - Open Pits						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
Assigned by DDMI unless otherwise indicated in report	Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.	Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.	Context should contain all the information needed to understand the rationale for the accompanying recommendation.	Distinct values/concepts that are contained in Traditional Knowledge and can help to guide decision process	Responses should be as specific as possible, relating the issues raised in the "recommendation".	Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.
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.	Stewardship Experiential learning Consensus Respect	Pending	Pending
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.	Nature is self-healing Natural condition	Pending	Pending
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 that this is where they would set nets.	Stewardship Social	Pending	Pending
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.	Stewardship Social	Pending	Pending
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.	Stewardship Natural condition Nature is self healing	Pending	Pending
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 alot 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.	Recording knowledge Stewardship Natural condition Experiential learning	Pending	Pending
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.	Recording knowledge Stewardship Natural condition Experiential learning	Pending	Pending
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.	Stewardship Experiential learning	Pending	Pending

DDMI TK Panel Recommendations and Response Tracking - Open Pits						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Stewardship Experiential learning Sharing knowledge	Pending	Pending
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.	Stewardship	Pending	Pending

**DDMI TK Panel Recommendations and Response Tracking - North Inlet**

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
<i>Assigned by DDMI unless otherwise indicated in report</i>	<i>Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.</i>	<i>Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.</i>	<i>Context should contain all the information needed to understand the rationale for the accompanying recommendation.</i>	<i>Distinct values/concepts that are contained in Traditional Knowledge and can help to guide decision process</i>	<i>Responses should be as specific as possible, relating the issues raised in the "recommendation".</i>	<i>Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.</i>
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.	Stewardship Reciprocity	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.	DDMI to use these maps as a basis for community engagement in relation to re-vegetation and wildlife use around the mine site at closure. DDMI to plan a TK Panel session for the North Inlet once all relevant information is available.

DDMI TK Panel Recommendations and Response Tracking - Water and Fish						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
<i>Assigned by DDMI unless otherwise indicated in report</i>	<i>Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.</i>	<i>Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.</i>	<i>Context should contain all the information needed to understand the rationale for the accompanying recommendation.</i>	<i>Distinct values/concepts that are contained in Traditional Knowledge and can help to guide decision process</i>	<i>Responses should be as specific as possible, relating the issues raised in the "recommendation".</i>	<i>Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.</i>
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.	Experiential learning Sharing knowledge	Pending	Pending
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.	Experiential learning Sharing knowledge	Pending	Pending
8.5	Reefs & Monitoring Water Report, TK Panel Session #8, 2-4 December 2015	Set fish nets on both sides of the island.	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.	Experiential learning Sharing knowledge	Pending	Pending
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.	Respect Experiential learning Intergenerational Sharing knowledge Stewardship Traditional laws	Pending	Pending
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.	Stewardship	Pending	Pending
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.	Stewardship	Pending	Pending
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.		Pending	Pending
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.	Stewardship	Pending	Pending

DDMI TK Panel Recommendations and Response Tracking - Water and Fish						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Stewardship	Pending	Pending
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.	Recording knowledge Stewardship Natural condition Experiential learning	Pending	Pending
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.	Stewardship Safety	Pending	Pending
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.	Stewardship	Pending	Pending
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.	Stewardship	Pending	Pending
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.	Stewardship	Pending	Pending
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.	Stewardship Experiential learning	Pending	Pending

DDMI TK Panel Recommendations and Response Tracking - Spiritual Considerations						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/ CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
Assigned by DDMI unless otherwise indicated in report	Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.	Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.	Context should contain all the information needed to understand the rationale for the accompanying recommendation.	Distinct values/concepts that are contained in Traditional Knowledge and can help to guide decision process	Responses should be as specific as possible, relating the issues raised in the "recommendation".	Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.
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 requiredresponsibilities 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.	Traditional laws Stewardship	Diavik is open to recommendations on how best to approach this with each of the five Aboriginal Participation Agreement communities.	To be determined
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.	Intergenerational Stewardship Experiential learning	This type of activitiy could be incorporated into plans to renew the community's relationship with the land in this area after closure.	To be determined
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.	Symbolism Stewardship	This type of activitiy could be incorporated into plans to renew the community's relationship with the area after closure.	To be determined



DDMI TK Panel Recommendations and Response Tracking - General (including TK/IQ Panel Process)						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
<i>Assigned by DDMI unless otherwise indicated in report</i>	<i>Be as specific as you think is appropriate; for example a section or page of the document, a recommendation #, general comment, etc.</i>	<i>Recommendations should be as specific as possible and explain an action that you believe is necessary; supporting information or rationale should be explained in the "context" column.</i>	<i>Context should contain all the information needed to understand the rationale for the accompanying recommendation.</i>	<i>Distinct values/ concepts that are contained in Traditional Knowledge and can help to guide decision process</i>	<i>Responses should be as specific as possible, relating the issues raised in the "recommendation".</i>	<i>Actions should be as specific as possible, relating the issues raised in the "recommendation"; where possible, a timeframe may be included.</i>
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.	Intergenerational Social Stewardship	Diavik sees value in having youth participate in TK/IQ Panel sessions, where possible.	Youth involvement was incorporated into the October 2013 Panel session, and also plans to include youth in future sessions.
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.	Recording knowledge Experiential learning	Diavik sees value in having TK/IQ Panel members visit the mine site. For safety reasons, visitors stay at the mine site accommodations.	In response to this request, a site visit and follow up meeting in Yellowknife was arranged for 20 & 21 August 2012. Diavik also began to hold TK/IQ Panel meetings at the mine site in October 2013, when the Panel began to be administered by Diavik.
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.	Recording knowledge Respect Reciprocity	Diavik is committed to providing a response to all Panel recommendations. Diavik also requested that EMAB provide past Panel recommendations to DDMI for response.	This Excel spreadsheet is the proposed tracking system and was reviewed and supported by the TK/IQ Panel. Updates to this spreadsheet are done over time and communicated in person to Panel members, and shared with the public as necessary.
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.	Respect Recording knowledge	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.	A request to add women participants for the August 2014 re-vegetation Panel session was sent to communities, as this had been suggested by the Panel in the past.

**DDMI TK Panel Recommendations and Response Tracking - General (including TK/IQ Panel Process)**

<b>NUMBER</b>	<b>REFERENCE</b>	<b>RECOMMENDATION</b>	<b>CONTEXT</b>	<b>TK VALUE/CONCEPT</b>	<b>DDMI RESPONSE</b>	<b>DDMI ACTION ITEMS</b>
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.	Recording knowledge Consensus Respect	A longer meeting is supported, provided that it results in an approved set of transcripts and recommendations by the end of the session.	Starting with the October 2013 TK/IQ Panel session, each Panel meeting is planned to be 4 days at the mine site. Transcripts are to be produced and presented to Panel members daily to be verified on-site, where possible.
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.	Symbolism Recording knowledge	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.	TK Panel reports are to use basic or plain language and efforts will be made to continue to make transcripts available daily for review.
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.	Respect	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.	Joanne Barnaby has been contracted to co-facilitate TK Panel sessions.
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.	Recording knowledge Consensus Respect	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.	Update the "Working Together" manual to reflect the change in administration of the Panel from EMAB to Diavik.
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.	Stewardship Respect Recording knowledge Intergenerational	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.	N/A

DDMI TK Panel Recommendations and Response Tracking - General (including TK/IQ Panel Process)						
NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Respect Recording knowledge Reciprocity	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.	N/A
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.	Reciprocity	Diavik views this approach as beneficial as well, and has supported the Panel with such expertise in the past.	Continue to work with the TK/IQ Panel facilitators to identify the required resources and expertise needed for each Panel session.
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.	N/A	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.	N/A
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.	Recording knowledge	Diavik supports the completion of the literature review report that was initiated for TK Panel Session 7.	Literature review of the TK of plants in the Lac de Gras region was completed in October 2014.
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 'womens only' session in the future, as this may create a more acceptable space for sharing the knowledge that is specific to women.	Traditional laws Respect Recording knowledge	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.	Diavik to request a woman participant from each community organization to attend each TK Panel session.

**DDMI TK Panel Recommendations and Response Tracking - General (including TK/IQ Panel Process)**

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Respect Reciprocity	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.	Diavik to provide suggested meeting topics and times for the following year at the last session in the previous year (e.g. plan for 2016 is provided at end of 2015), for discussion by Panel members.
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.	Traditional laws Respect Recording knowledge	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.	N/A
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.	Traditional laws Respect Recording knowledge	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.	Diavik to include this request in future correspondence with community organizations that arrange meeting participants.
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.	Intergenerational Social Stewardship	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.	Diavik to include this request in future correspondence with community organizations that arrange meeting participants.

**DDMI TK Panel Recommendations and Response Tracking - General (including TK/IQ Panel Process)**

NUMBER	REFERENCE	RECOMMENDATION	CONTEXT	TK VALUE/CONCEPT	DDMI RESPONSE	DDMI ACTION ITEMS
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.	Stewardship Respect Recording knowledge Intergenerational Reciprocity	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.	N/A
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.	Stewardship Intergenerational	Pending	Pending
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.	Respect Reciprocity Social	Pending	Pending
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.	Stewardship Social	Pending	Pending
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).	Stewardship Social Safety	Pending	Pending

TK Value/Concept	General Description	Sub-themes
Traditional Laws	Relationships and rules between human and nature that are to be followed (when practicing traditional activities)	<ul style="list-style-type: none"> <li>Relationships</li> <li>Roles</li> <li>Responsibilities</li> <li>Accountability</li> <li>Sharing</li> <li>Verification</li> <li>Rules</li> <li>Animals</li> <li>People</li> </ul>
Symbolism	Ways in which beliefs are represented, and may include ceremonies	<ul style="list-style-type: none"> <li>Place names</li> <li>Language</li> <li>Spirituality</li> <li>Ceremony</li> <li>Offerings</li> <li>Prayer</li> <li>Creator</li> </ul>
Reciprocity	Everything is shared for the greater good	<ul style="list-style-type: none"> <li>Communication</li> <li>Sharing</li> <li>Perspectives/Lens</li> <li>Cross-cultural</li> <li>Respect</li> <li>Mutual benefit</li> <li>Teaching</li> <li>Learning</li> </ul>
Intergenerational	Everything done today impacts our families in the future	<ul style="list-style-type: none"> <li>7 generations</li> <li>Family</li> <li>Future</li> <li>Circle of life</li> <li>Continuity</li> <li>Borrowing</li> </ul>
Stewardship	Responsibility to protect the land and its resources	<ul style="list-style-type: none"> <li>Teaching</li> <li>Elders</li> <li>Learning</li> <li>Youth</li> <li>Responsibility</li> <li>Respect</li> <li>Future</li> <li>Stories</li> <li>Caretakers</li> <li>Connection</li> </ul>

TK Value/Concept	General Description	Sub-themes
Respect	Essential to demonstrate; providing support and a positive view of all living things and people	Knowledge Elders Being heard Traditional Roles Creator Accountability Ceremony All living things
Recording Knowledge	Oral tradition/culture that is recognizing an increasing need to formally document historical knowledge	Verification Sharing Trust Stories Cooperation Listening Documentation "In our own words" Language Future Review
Seasonality	Life flows with the change in seasons	Change Adaptability Freeze/thaw Migrations Cycles Provisions of the land Variability Norms Climate
Natural Condition	The preferred state of the environment from a traditional perspective	Nature Harmony Respect Safe
Social	Changing societal values that are influenced by globalization & access	Evolving Relationships Priorities Teaching Hobby Way of Life Adaptability Development Globalization Access Technology

TK Value/Concept	General Description	Sub-themes
Safety	Traditional practices that protect the land, animals and people	Respect Traditions Learned behaviour Accountability Responsibility Caretakers
Nature is self-healing	The land and water will heal itself, given the right conditions	History Respect Knowledge Spirituality Observation Connection
Consensus	Traditional leadership that seeks to find agreement	Respect Knowledge Observation Tradition Leadership
Experiential learning	Learning by observation and by doing	Elders Youth Knowledge Respect Understanding Observation



## **Appendix I-2**

DDMI Traditional Knowledge Panel Session #8 – Focus on Water Quality and Fish Habitat.

# DDMI Traditional Knowledge Panel Session #8

## FOCUS ON REEFS AND MONITORING WATER

Yellowknife, NT  
December 2–4, 2015



Thorpe  
Consulting  
Services

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

## Session #8: *Focus on Reefs and Monitoring Water*

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Yellowknife, NT  
December 2-4, 2015

### Facilitation

Joanne Barnaby, Joanne Barnaby Consulting  
Natasha Thorpe, Thorpe Consulting Services (TCS)

### Participants

Kitikmeot Inuit Association	Bobby Algona, Nancy Kadlun, Ethan Kadlun (youth)
Łutsel K'e Dene First Nation	August Enzoe, Bertha Catholique, Lucas Enzoe (youth)
North Slave Métis Alliance	Ed Jones, Kathy Arden
Tłı̨chǫ Government	Dora Migwi, Louie Zoe, Janelle Nitsiza (youth), James Rabesca (interpreter)
Yellowknives Dene First Nation	Mike Francis, Fred Sangris, Mary Louise Black (youth), Berna Martin (interpreter)

### Observers/Presenters/Visitors

Fisheries and Oceans Canada	Julie Marentette and Georgina Williston (presenters)
Environmental Monitoring Advisory Board	John McCullum
North Slave Métis Alliance	Chloe Dragon Smith
Tłı̨chǫ Government Lands Department	Phoebe Rabesca
Diavik Diamond Mines Inc.	Gord Macdonald
C&E Consulting	Colleen English
Thorpe Consulting Services	Janet Murray (transcriber)

*Interpreting equipment provided by Pido Productions.*

## Background

The TK Panel is mandated to assist Diavik Diamond Mines (2012) Inc. (Diavik) and work with local communities in facilitating appropriate and meaningful accommodation of Traditional Knowledge (TK). The TK Panel provides guidance in environmental management and monitoring as well as in closure planning at the Diavik Diamond Mine. From 2011 through early 2013, TK Panels were assembled by the Environmental Monitoring Advisory Board (EMAB) to discuss select concerns related to the Diavik Diamond Mine. The most recent session was held in Yellowknife, NT from December 2–4, 2015 and was the fourth in a series of TK Panel sessions now administered under Diavik rather than EMAB, but the eighth in the series of TK Panel sessions.

## Session Purpose

This eighth session focused on Diavik’s closure plans in relation to water monitoring and the dike, including reef construction and shoreline design options. Both small scale and landscape level considerations for the immediate mine site (e.g., East Island) and broader Lac de Gras area were discussed (Figure 1).

The TK Panel drew upon their knowledge of fish and water, as well as observations made during previous site visits and the 2015 AEMP TK Camp, ultimately elaborating further on concepts, values, understandings, and complexities offered in earlier TK Panel sessions (e.g., advising that undisturbed areas within the dike should not be disturbed when the reefs are constructed). The TK Panel developed recommendations and commented on future sessions for review and consideration by Diavik.

## Session Goals and Activities

The TK Panel reviews closure plans for various areas of the mine, shares their knowledge in relation to each topic and presents recommendations to Diavik at the end of each session. In this way, they are continually increasing their understanding of the mine site and its closure challenges, while also directly influencing Diavik’s closure plans. The goals for Session 8 were to:

1. Provide an opportunity for TK Panel members to determine priorities and methods for managing and monitoring water post-closure.
2. Review the results of the 2015 AEMP TK Study.
3. Consider fisheries habitat upon closure, specifically the proposed reefs within the dikes.
4. Learn how recommendations provided to Diavik in the past session are being considered presently.



**Figure 1 Diavik Diamond Mine 2015**

This three day TK Panel Session was held in Yellowknife and structured according to these key goals. At the outset of the session, the group reviewed the proposed format, scheduling and agenda. An evaluation process held at the end of the session helps to improve future sessions.

We are talking about the importance of the water. This is our land. That our land won't be so disturbed that we'll have it forever and we are not talking for ourselves we are talking for our future, that we would always have the water clean. – Louie Zoe, December 2, 2015

## Report Overview

This report first outlines key themes around water and fish related to closure planning that were discussed during the session and closes with recommendations made by the TK Panel. Appendix A includes some photos from the session. Appendix B includes the session agenda while Appendix C contains a blank copy of the informed consent form that was signed by participants new to the TK Panel. Since it was not possible for the participants to review the session transcripts, these are included in draft form only in Appendix D.

Bobby Algona and August Enzoë gave a detailed update of the AEMP TK Study (see Appendix D [Day One] and Appendix E) highlighting the summer camp, recent verification session, review the related draft video-documentary [<https://vimeo.com/artlesscollective/wefishtodayforfishtomorrow>] and report conclusion [available through Diavik public registry: <http://www.mvlwb.ca/Boards/WLWB/SitePages/registry.aspx> after March 2016]. Diavik provided an update of the closure plan (Appendix F) and reported back on TK Panel Session 7 recommendations on vegetation (Appendix G). Diavik also reported on water quality (Appendix H) and presented an informative / educational presentation on fisheries habitat, with a focus on reefs (Appendix I). The Department of Fisheries and Oceans Canada gave a presentation on reefs/ shoals (Appendix J).

On the morning of the last day, the youth collaboratively presented the work of the TK Panel to Gord Macdonald through a presentation outlining key observations and comments as well as recommendations on reefs and monitoring water (Appendix K). A short presentation delivered on the next steps is included (Appendix L), followed by a summary of participant evaluations (Appendix M).

## Proceedings: Key Themes

The key themes discussed throughout the session included:

1. It is important to continually monitor water quality and quantity after closure using both TK and western science.
2. With slight modifications, the current Aquatic Effects Monitoring Program (AEMP) TK Study is strongly supported and should continue at the current location until at least 2018.
3. Fish need to be respected and have different habitat considerations for different life-stages.
4. Youth need to be involved, both now and in the future.
5. Diavik and the TK Panel is a model for collaboration between western science and TK.
6. The future is uncertain and efforts to increase energy efficiency and monitor for climate change are important.

## 1. Continually Monitor Water Quality and Quantity after Closure

The TK Panel was unwavering in advising that water and fish continue to be monitored long after closure, both at the present site (e.g., East Island) within the dike and in surrounding waterbodies (e.g., Lac de Gras, the Narrows, Lac du Sauvage, outflow to Coppermine River). Discussions started with the current AEMP and included how a monitoring program should continue in the near future and post-closure. As part of these discussions, issues around water levels, flow and monitoring capacity of communities were frequently mentioned.

It's got to be monitored even after Diavik is gone. It's got to be Aboriginal people because it's our land. We don't want anything to happen, we don't want just anybody to walk away and leave it. So it's got to be monitored for the next generations, the next generations that are coming. It's got to be ongoing. Because it's water, it's the only thing that gives life. – Bertha Catholique, December 2, 2015

We do need to monitor an ongoing program for after the mine is closed, we've already heard that. Until we are satisfied - that is a strong phrase there - until we are satisfied. I think that speaks for itself, after the mine life is done. – Bobby Algona, December 2, 2015

Throughout the three days of discussions, the TK Panel considered which areas they would like to sample and why; how, where and whether to interweave TK and western science in water monitoring and specific features of the land that might clean or heal water.

The TK Panel expressed that Diavik has an ongoing responsibility to make sure that “all is well” and “people’s minds are at ease” but that community members want to help and ultimately take the lead today, tomorrow and long into the future.

## 2. Aquatic Effects Monitoring Program

The TK Panel voted to keep the current location of the AEMP camp until at least 2018. After closure, participants asked that Diavik consider options to donate camp facilities to people traveling to Lac de Gras and, if it is not possible to keep the current camp intact, that at least the tent frames remain.

The financial, logistical and capacity challenges of community members to continue AEMP activities (both the scientific and traditional knowledge elements) were raised multiple times. The Panel recognized that monitoring is costly and advised that Aboriginal groups should start working with governments and industry today to plan for closure tomorrow. A monitoring program similar to the AEMP could be administered through the Environmental Monitoring Advisory Board or another independent agency that could pull together the five Aboriginal groups and governments.

One suggestion was to use the bond posted by Diavik as a possible funding source to support monitoring post-closure. However, Diavik clarified that the bond is considered a “safety net” which is not meant to be used unless something extreme were to happen (e.g., company bailouts, bankruptcies).

Discussions of monitoring post-closure helped the TK Panel realize that current community capacity is not at a level where Aboriginal communities could take-over monitoring in the same way as is done presently. The importance of supporting monitoring training today thus becomes even more critical. Further, participants strongly advised that people start monitoring training now so that youth today can carry through to monitoring post-closure, equipped with *personal knowledge and experience* (i.e., the foundations of TK) of decisions and activities today. One suggestion was to build a school in the north specifically for monitoring; however, the TK Panel recognized that there are several existing monitoring programs to help build monitoring capacity:

- *LKDFN Watchers of the Land* ([www.landoftheancestors.ca/team/ni-hatni-dene-program.html](http://www.landoftheancestors.ca/team/ni-hatni-dene-program.html))
- Aurora College Environmental Monitor Training Program ([www.auroracollege.nt.ca/live/pages/wpPages/ProgramInfoDisplay.aspx?id=64&tp=PRG](http://www.auroracollege.nt.ca/live/pages/wpPages/ProgramInfoDisplay.aspx?id=64&tp=PRG)) or Environment and Natural Resources Technology Program ([www.auroracollege.nt.ca/live/pages/wppages/ProgramInfoDisplay.aspx?id=117&tp=PRG](http://www.auroracollege.nt.ca/live/pages/wppages/ProgramInfoDisplay.aspx?id=117&tp=PRG))
- BEAHR Environmental Monitoring Coordinator, etc. (<http://www.eco.ca/beahr/program-options/>)
- Programs such as CIMP that are supported by the territorial and federal governments

Aboriginal groups must continue to monitor fish and water long after closure in a coordinated and well-funded program that integrates TK and western science.

During the update of the 2015 AEMP TK Study, Bobby Algona and August Enzo mentioned that a few changes to the methods were suggested for next time, including tasting water in its pure form rather than as tea. The TK Panel discussed and supported this suggestion.

Figure 2 shows sampling locations for the scientific components of the AEMP that were developed with community input and are still supported by both 2015 AEMP TK Study camp participants and members of the TK Panel. However, given the importance of the Narrows to wildlife, fish and people, the TK Panel members advised that both fish and water should be sampled from this area henceforth for the TK component of the AEMP.

### **Water Quality Monitoring [Lac de Gras]**

During this session, many indicators of good water quality from the TK perspective were shared. One example was that “bugs” within the lake have long been an indicator of good water for drinking.



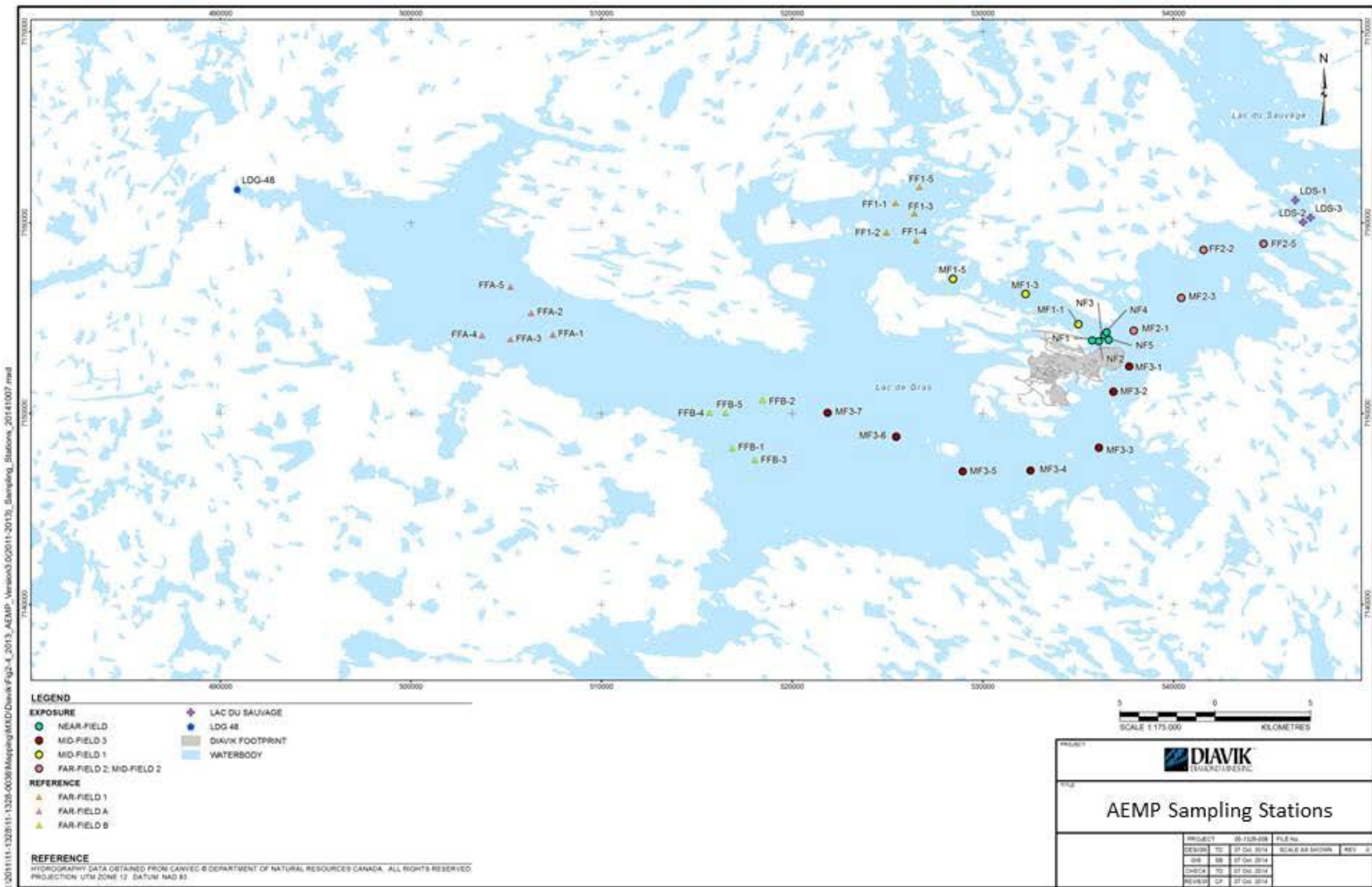


Figure 2 AEMP Sampling Stations

Even without water or tea testing, which I saw this summer when we did water sampling from underneath the lake. When the lake bottom comes up, we saw all kinds of little bugs and that makes me happy because I know the water is healthy because all those little bugs wouldn't be living if it was contaminated. They are so tiny and there were lots of kinds I was happy to see that. They are so tiny they couldn't live with the contamination. – Nancy Kadlun, December 2, 2015

Another example was that animals could be monitored to see if they drink from particular water sources. If they hesitate to drink or come near a water source, this might mean that the water quality is compromised.

TK Panel members spoke to the importance of continuing to taste lake water to evaluate quality. Lessons from TK suggest that the best drinking water comes from deeper areas, below the surface. One must look for scum on the surface of the water as well since this can be an indicator of poor or altered water quality.

When the water changes, there is a scum around the cup, – Fred Sangris, December 2, 2015

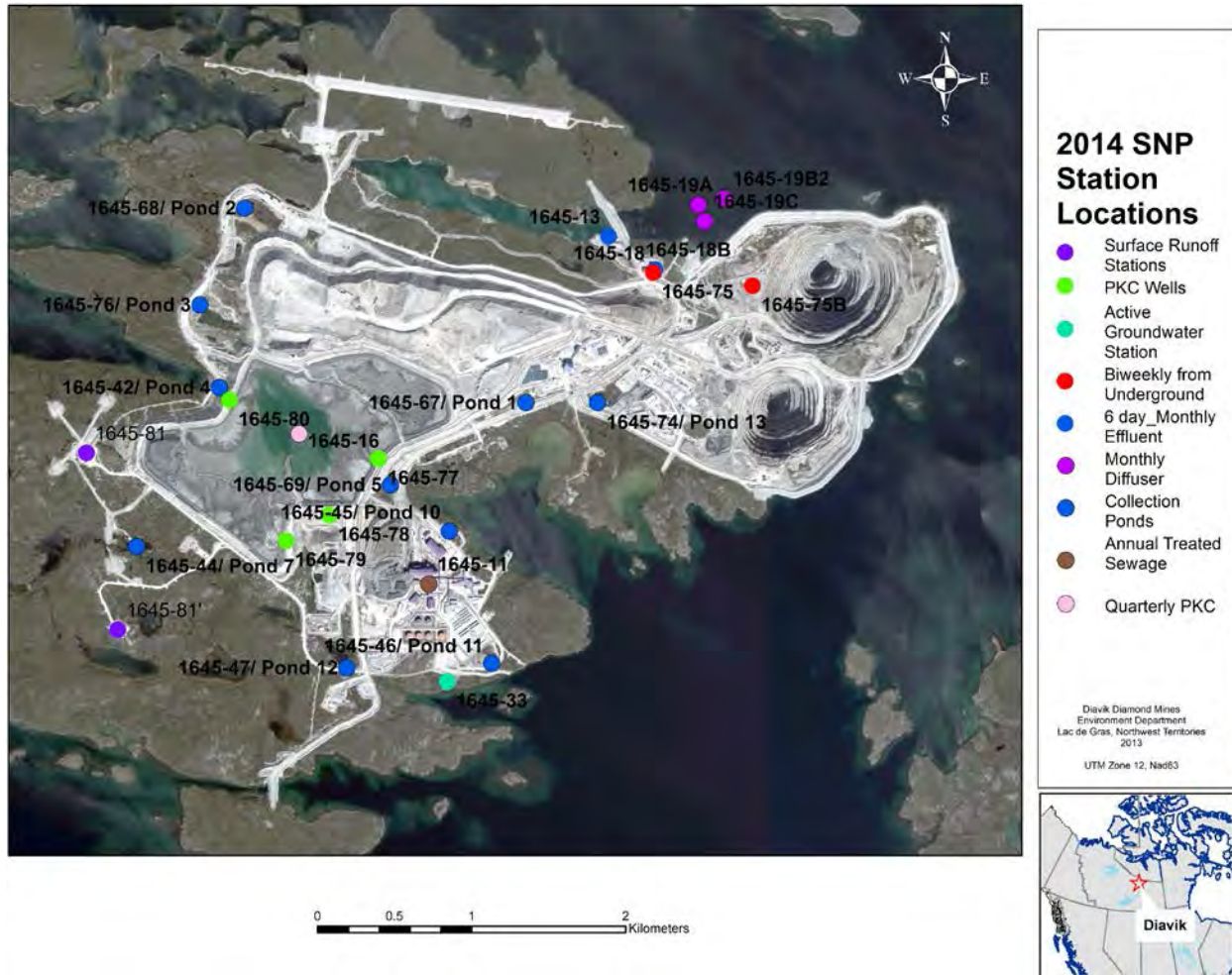
Fish tasting is also an important indicator of water quality. The TK Panel explained that when the water quality changes, the fish can taste different.

### **Water Quality Monitoring [Water flow in/around site]**

In addition to the AEMP sampling locations, the TK Panel discussed in detail how water should be monitored in and around the current site, within the dike on the East Island and within the context of the current surveillance network program (SNP) as shown in Figure 3. After much consideration, dialogue with Diavik and review of current maps showing pit location, undisturbed areas and landscape, the TK Panel decided that when the pits are refilled and the dikes breached, the natural lands between the pits and dikes should be left alone to facilitate natural regrowth, and reefs of various heights and composition should be constructed away from existing vegetative growth and lake bottom sediments.

Participants emphasized that the land can heal itself and that vegetation and mosses are known to filter water. Placing mosses or encouraging certain types of vegetation to grow in key aquatic areas such as channels and shorelines should be considered as part of the closure plan and included in post-closure monitoring.

Given concerns about possible water contamination in the areas within the dikes, TK Panel members suggested that water quality monitoring on East Island post-closure should be done through scientific analysis and visual inspection led by the communities (i.e., not by tasting). However, tasting water in Lac de Gras and other areas farther from the immediate mine site would continue as part of any monitoring program such as the AEMP TK Study.



**Figure 3 2014 Surveillance Network Program Station Locations**

I know that the Elders don't want to drink the water there because there is still residue from the dynamite on the walls of the open pits, ammonia and so on, so I wouldn't want to drink it anyways but I think the idea of getting samples or continued study on that would probably be good. The pits themselves have to be studied, get the water, get it studied to check that the water is still the same or if there are any changes happening to it we need to know. But I think a lot of us here are not going to continue to be involved; most of us will probably move on but I think it's important to bring our youth, get them involved, educate them, they need to continue to be involved so that the monitoring can continue and the reports can come out and they can understand the reports so that 2030 maybe continue into the future, we don't know when is the end. – Fred Sangris, December 2, 2015

TK Panel members expressed concern about groundwater and how tunnels extending under the pits may lead to contamination. Diavik explained that they plan to remove any items from the pits and underground tunnels that would lead to water contamination. Given that water is saltier deeper under the earth's surface, water will be monitored within the pits as they are refilled. Extensive testing and monitoring of water is required before, during and after the dikes are breached.

### **3. Fish Need to be Respected and have Different Habitat Considerations for Different Life-stages**

The third key theme that emerged from the session is that fish need to be respected and that they have different habitat considerations for different life-stages. Fish need special considerations: they can hear and feel what you are doing on the ice, they need shorelines that provide sources of oxygen, and pressure ridges or open water are well known areas that attract fish because of the oxygen. Presence of too much algal growth on shorelines can be an indicator that there is less oxygen for fish, so this should be monitored.

In future AEMP TK studies, the TK Panel advised that nets be set on both sides of East Island and that both fish and water be monitored.

The TK Panel discussed at length how artificial reefs, shorelines, and pits should be handled post-closure to maximize fish habitat. Participants outlined what makes habitat "good" for spawning, nursing, rearing, and resting with a focus on water movement, substrates and slopes. They considered potential reef shapes and sizes, the type and size of rock to use, and how deep underneath the surface of the water they should be. The TK Panel also considered the shorelines around the dike and pits, thinking about how they should be best modified for fish, wildlife and vegetation.

#### **Reefs**

After both Diavik and DFO gave presentations on how reefs are constructed to maximize fish habitat, TK Panel members advised that the current approach sounds reasonable and that efforts should be made not to interfere with undisturbed areas on East Island, within the dike and when constructing reefs. It was agreed that the areas within the dikes should not be constructed to encourage spawning, but focus more on rearing and resting.

They like to lay their eggs in a very sandy area, maybe not sandy but gravel, and it has to have a slope. The current can't be really strong but it has to be moving. . . . When the fish are born, they like that shallow area with a little bit of gravel. They don't like the sand, and most areas in the east where there is a lot of fine sand you always find dead minnows floating around. They have no protection to hide from the waves so the waves just wash them up and that's why we find

lots of minnows on those sandy beaches. After they are born they want to go into the shallow areas, so through the islands you will find lots of minnows. But they are not going to go in the pits. – Fred Sangris, December 3, 2015

Participants also clarified that a variety of shapes and sizes should be considered for reefs, but that they should not pose a safety hazard for travelers. Specifically, it was advised that the reefs remain low enough under the water that the ice still freezes solid. Reefs can affect currents and lead to open water if they are too close to the surface. If the reefs extend out of the water (i.e., become islands), snow and ice can accumulate such that the ice is not as thick in the middle of the lake due to insulation effects. Bobby Algona cautioned:

I have come across a lot of shoals . . . where I grew up and lived all my life and there are many, many shoals on this lake and I have to be really, really careful around those areas. . . . That was my big concern, for safety. Am I going to be safe coming to this place when there is a shoal there that I didn't know about, and it's keeping the ice thin. – Bobby Algona, December 3, 2015

Participants advised that in addition to substrate, currents are a determining factor in spawning site selection and successful spawning. Fish are known to lay eggs in shallow areas where there is current. After much discussion, it was suggested that there was good spawning habitat elsewhere in Lac de Gras and that this needn't be a focus for the reefs, shorelines, dikes or pits.

### **Shorelines and Pits**

The TK Panel reviewed satellite photos of the current mine site (Figure 1) and drew from their experiences “seeing with their own eyes” while onsite to conclude that the shorelines on the dikes can be left largely as-is. The group agreed that upon closure, the roads leading down into the pits could be left as-is, but the approximately 1 km cliff along the shoreline of Pit A418 should be modified such that caribou and other animals can have easy and safe passage. Session participants thought that the caribou might fall or be chased off the cliff in Pit A418.

Yes I understand there is a drop about 10 feet which is dangerous for the caribou and the wolves and the foxes. So before the water is pumped back in there, I suggest maybe you put some sort of a slope. – Louie Zoe, December 3, 2015

Further discussion clarified what modifications might work:

What if you left pieces of it as a cliff but add pieces of gradual slope for the caribou? – Gord Macdonald

Yes, that would work. – Bobby Algona, December 4, 2015

Participants agreed that the shoreline around Pit A154 can stay as-is and didn't pose any hazards. Given the challenges of providing guidance without seeing the pits and shorelines at the site, the TK Panel members asked that they be given the chance to visit these areas to see for themselves and provide specific in-the-field guidance on the shoreline to Diavik at a later date.

During closure and when building reefs or making modifications to shorelines, the stages in the moon cycles should be considered as they are well known to affect water flow and currents.

You can use a fish line as an indicator of current and watch how it changes; it is important to understand currents in Lac de Gras and Lac du Sauvage when thinking about reefs, shorelines and pits. – Bobby Algona, December 3, 2015

## Pits

As in previous sessions, members of the TK Panel shared their concerns that the pits were not going to be re-filled with rock and that the pits would be too deep for fish habitat. People also discussed concerns about water quality in the pits once they are filled with water, as discussed above. Diavik reviewed the current closure plan and explained how the pits would be filled with water and tested for approximately five years before the dikes were breached. From that point, it was suggested that it would take “just a few short years” before the fish would return to the area.

## 4. Youth Must be Engaged

Although current efforts were recognized, better ways to engage youth by community members need to be explored. Accordingly, two youth from each Aboriginal group should be attending camps and meetings. It was recognized that elder panel members could help ensure that Aboriginal governments select appropriate youth in a timely manner. Both the importance of, and challenges with youth engagement have been discussed at every TK Panel session.

## 5. Diavik and the TK Panel Demonstrate a Collaborative Model

Collaboration between different groups, disciplines, and generations strengthens the nature and quality of the work that is carried out by TK Panel members as well as the resulting actions taken by Diavik (for example, see responses to recommendations from Session 7 in Appendix C). While the membership of the TK Panel has shifted slightly to become more gender balanced, many members have been participating since the TK Panel began in 2011. Such commitment levels are indicators of the success of the TK Panel and enable the members to move through a series of related topics with each session, building on their knowledge from one year to the next.

As Bobby Algona summarized:

I think there is a whole lot more things that we can learn from this as well and certainly as TK holders we have come to appreciate what scientists have brought as well. I think we need to work much more closely with the scientists as well so that scientists can learn from us as well as to how we came to learn these things.

– Bobby Algona, December 2, 2015

Early in the session, one participant asked Diavik how they could help advise Diavik regarding planning fish habitat when the pits were reconnected, given that TK Panel members had never seen this “problem” before. Yet the very point of the TK Panel is to facilitate interweaving TK expertise that simply may not have been applied in the same setting before, but nonetheless, is integral to a fulsome understanding by DDMI, scientists, TK holders, regulators, and northerners alike. Indeed, it is the commitment of TK Panel members and Diavik staff alike to respect one another’s perspectives and to see value in learning from each way of knowing that is at the core of this successful collaborative model.

. . . give a little insight about what the dangers might be and to get them to think a little bit about what your future might be with what the mining industry is doing and how the mining industry as well can help the youth with a program or what they might be doing in the future. That’s a most wonderful thing that we can do as Elders. We can have these that we can bring home and it makes it a whole lot easier to explain to the young generation with these tools. – Bobby Algona, December 2, 2015

One thing that we can probably use is, we all come from different communities, maybe there is something we can bring back to the community to show them what we are doing and they can see the progress we have made. So our community people have an idea, you were involved, we are helping with the recommendations, this is how closure is going to work and this is how we are going to be monitoring. We need to show something to the community so they know the mines are not being abandoned and you are not walking away. So there is progress and there are people thinking about the future. And safe guards are there. – Fred Sangris, December 3, 2015

Given the success of this collaborative model, the TK Panel members emphasized that materials that reflect this collaboration in monitoring and planning should be shared publicly and widely. Educational “tools” such as videos (DVDs), books, photos, should be given to TK Panel members as well as more widely distributed. Reports and video-documentaries developed for the AEMP TK Studies of 2012 and 2015 are examples of such materials.

## 6. Increase Energy Efficiency and Monitor Climate Change

This particular TK Panel Session took place the week after the *COP 21: UN Climate Change Conference* such that environmental issues, in general, and climate change impacts, in particular, were on people's minds. Throughout the session and during the breaks, TK Panel members spoke of the importance of this global conference. It was as if the conference provided a certain level of urgency and responsibility as well as empowerment to the work of the TK Panel. Such discussions provided opportunity for Elders and youth to come together to talk about the mining industry, climate change and the accompanying responsibilities held by Indigenous peoples in monitoring their lands.

I notice everything around us here, when I look at things, how many ounces to make this one tool that we use. How many ounces to make this one microphone that we use as a tool? . . . Looking at all that, we need to think a whole lot more about the mining industry itself. We can't get away from the mining itself, I see very far into the future the mines are going to be ongoing all the time now, we cannot get away from it. I think even though I have a lot of qualms about the mining industry itself, then I start to look at a lot of other good tools that they make alright but I always think of something that we should be doing. – Bobby Algona, December 2, 2015

I like that Bobby touched base on the environment. I think what Diavik and all these mines really need to take into consideration is doing things more energy efficient now, not in the future, not when we are closing but now. Work on the little things, it's the little things that count; they make big things one day. So any little thing that we can do to help the environment because climate change is here, it's in our face, we need to deal with it now otherwise none of us will be here and its really serious. – Janelle Nitsiza, December 2, 2015

Youth Lucas Enzo asked the group: “Are we going to find an alternative way to make better tools for a greener place to help out the earth, or keep destroying the earth?”

Concerns about lower water levels across the North were also shared along with the concept that water is life-giving and precious:

Okay well I want to make a point, too. Water across the world is very precious. I think it's more precious than the diamonds that we are digging up because are you going to drink diamonds when the world runs out of fresh water? I don't think so. – Janelle Nitsiza, December 3, 2015



The TK Panel spoke to the importance of planning for climate change through closure and post-closure:

My concern is the volume of water that we have right now. We know lakes are becoming very low now. Global warming has an effect on this, too. Are we going to have rain coming down in the future? Looking at it in the future we are not getting much rain right now that's what I have been really worried about. Are the natural levels going to come back to Lac de Gras due to climate change as well? And having that volume going back into the pit was my concern; taking that little bit along with global warming and not much precipitation over the last few years, that is my concern. – Bobby Algona, December 3, 2015

## **Outcomes: Recommendations**

The TK Panel collectively developed 33 unanimous recommendations related to reefs and monitoring water at closure (Appendix K). These recommendations flowed from a common vision expressed during previous TK Panel sessions that the mine site be returned to the most natural state humanly possible and that monitoring efforts continue, in part, to support fish and wildlife.

Following observations and comments about fish, water, the AEMP, reefs (shoals), shorelines, and other general issues, the recommendations are divided by the following themes:

- AEMP TK Study
- On-Island
- Reefs
- Shoreline
- General

Recommendations are numbered to reflect the TK Panel session identification (i.e., Session 8) and to subsequently identify each specific recommendation (i.e., 8.1–8.33).

## **TK Panel Next Steps**

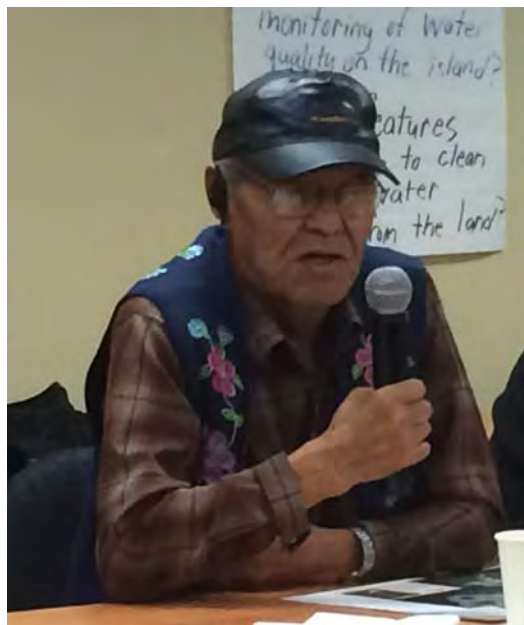
Following from planning carried out at previous sessions, Diavik gave an overview of the next TK Panel topics and schedule suggestions (Appendix L). The TK Panel supported the following suggestions: TK Panel Session #9 will focus on post-closure wildlife monitoring and be held on-site at Diavik in either May/June of 2016; and TK Panel Session #10 will focus on a closure plan update and landscape overview and similarly be held on-site. The TK Panel reiterated that they would like to visit the North Country Rock Pile to view the current height, the pit shorelines, areas planned for reef construction within the dikes, as well as the sewage treatment plant.

## **Appendix A**

### **TK Panel #8 Session Photos**



Dora Migwi



Mike Francis



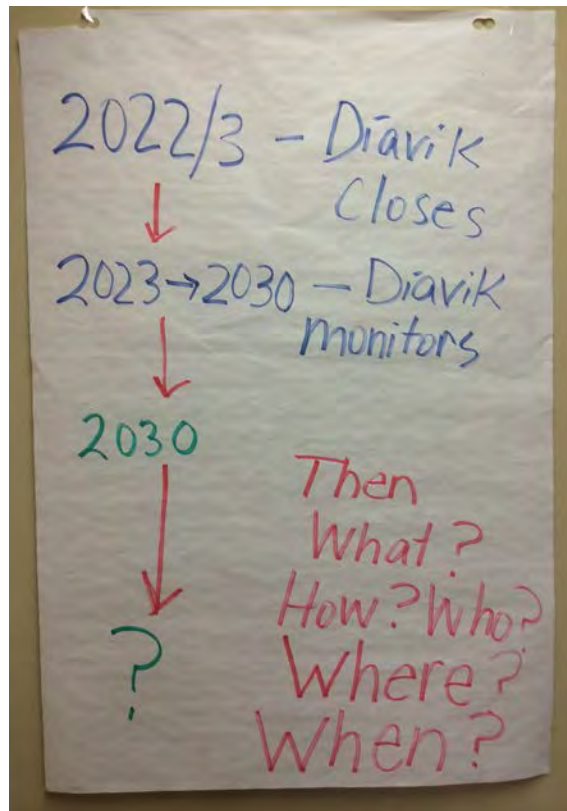
Janelle Nitsiza shares a laugh with Elder Louie Zoe. Janelle recommends humour as a way of connecting and bridging language differences with Elders.



Ed Jones and Kathy Arden participate in discussion (foreground); Chloe Dragon Smith and August Enzoe remember the AEMP TK Camp of 2015 together.



The Panel puts forth ideas for water quality monitoring [Nancy Kadlun; Bobby Algona; Ed Jones; Kathy Arden; Joanne Barnaby (L-R)].



The TK Panel provided guidance on post-closure monitoring, using flip charts, sticky notes and session recordings to capture their ideas.



Gord Macdonald of Diavik provides a diagram of the dike for discussion purposes.



Elder August Enzoe and Lucas Enzoe (foreground); Janet Murray and Mary Louise Black (background).



Fred Sangris reflects on his experience with the AEMP TK Camp to provide guidance on how water and fish should be monitored in the future.

## **Appendix B**

### **TK Panel #8 Session Agenda**





## Agenda

**Diavik Diamond Mines Inc.  
Traditional Knowledge Panel  
Session #8: Aquatic Systems  
Yellowknife, NT  
December 2 - 4, 2015**

### **Wednesday, December 2**

- 8:30 am      Opening Prayer
- Welcome, Round Table Introductions, Review Draft Agenda, Workshop Purpose Overview
- DDMI Closure Overview & Session Focus
- Break
- 10:30 am     Aquatic Effects Monitoring Program 2015 TK Study Update
- Group Discussion: *Monitoring fish health and lake water in the future*
- 12:00 pm     Provided Lunch [Play AEMP Video from 2015]
- 1:00 pm      Group Discussion: Cont'd
- Break
- 3:30 pm      Recommendations Table Update Review
- Group Discussion: Recommendations
- 5:00 pm      Close

### **Thursday, December 3**

- 8:30 am      Overview of Day 1
- Diavik Presentation: Water Quality Monitoring [water flow on/around site]



Break

Group Discussion: *Monitoring water quality on East Island after closure*

12:00 pm Provided Lunch

1:00 pm Shorelines & Fish Habitat in Lac de Gras after closure (Presentations by Diavik & DFO)

Group Discussion: *Shoreline and fish habitat design in Lac de Gras*

4:00 pm Review of Days Key Messages / Recommendations / Notes

5:00 pm Close

#### **Friday, December 4**

8:30 am Compile and Review TK Panel Recommendations for DDMI

Group Discussion

Break

Group Discussion

Noon Lunch

1:00 pm Present TK Panel Recommendations to DDMI

2:00 pm DDMI Preliminary Response to Panel Recommendations

Next Steps – plan for 2016 meetings

Break

3:30 pm Round-table

5:00 pm Closing Prayer

## **Appendix C**

### **Informed Consent Form**

## Diavik Diamond Mines Inc. Traditional Knowledge Panel

### ***Informed Consent Form***

I (name) \_\_\_\_\_ on \_\_\_\_\_, 2015 give permission for Diavik Diamond Mines Inc. and its contractors to take notes, photographs and / or audio and video recordings related to my participation in meetings, workshops and events related to the Traditional Knowledge Panel established for the Diavik Diamond Mine. I understand that my participation includes meetings and workshops held throughout each year either in communities in the NWT or NU or at the Diavik Diamond Mine.

Through my signature below, I understand that:

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

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

Signed this \_\_\_\_\_ day of \_\_\_\_\_ 2015, in \_\_\_\_\_  
Northwest Territories,

Signatures:

\_\_\_\_\_

Participant

\_\_\_\_\_

Aboriginal Organization

\_\_\_\_\_

Diavik Diamond Mines Inc.

\_\_\_\_\_

DDMI Contractor

## **Appendix D**

### **Draft Session Notes**

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Wednesday, December 2<sup>nd</sup>, 2015**

2 **Joanne Barnaby:** Mike Francis will offer the opening prayer.

3 **Mike Francis:** Opening prayer

4 **Natasha Thorpe:** Welcome everybody it's good to see familiar faces around the table. I  
5 am hoping everybody has an agenda. I am going to take a moment to walk us  
6 through the next few days, planning for mine closure. Bobby and August are  
7 going to give you an update on the AEMP, the fish and water testing camp, that  
8 was held out at Lac de Gras this past summer.

9 We've got a video to show you at lunch time.

10 Before lunch we are going to talk a little bit about monitoring fish health and  
11 lake water into the future.

12 At the end of the day Colleen will be presenting the response that came back  
13 from Diavik to the last set of recommendations that you made in Session 7  
14 regarding re-vegetation.

15 Looking forward to having a discussion about what the AEMP TK study might  
16 look like after closure. 2022-2023.

17 Lunch is provided. DFO is coming in to talk about reefs and planning  
18 construction for after closure and talking about how Diavik might do this and  
19 what they can do today to plan that into the future.

20 So at the end of session we will review what we have talked about so far. Give  
21 any specific feedback or recommendations. And then Gord from Diavik will be  
22 here to listen to those and provide an initial response. And we will discuss  
23 plans for 2016.

24 Questions, comments??

25 We have a few new faces at the table so I am just going to pass the mic around  
26 so you can introduce yourself, your community and maybe tell us how long  
27 you have been involved with the TK Panel for Diavik.

28 **Gord Macdonald:** I have worked for Diavik for almost 20 years now and always in the  
29 environment department and currently my focus is on closure planning but  
30 while it is currently my focus it was also my focus back in 1996 when we were  
31 designing the mine and so a lot of those ideas that we had then and we got from

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 the communities then are in the closure plan. And now we are coming back to  
2 it after 20 years verifying where it is and working on the details of that, that I  
3 will present to you later this morning. I have been involved with the TK Panel  
4 from the beginning and some of its precursors and again I am looking forward  
5 to working with you and hearing recommendations from you on Friday.

6 **Lucas Enzoë:** Hi my name is Lucas Enzoë and I am new for this TK Panel and I am from  
7 Łutsel K'e.

8 **August Enzoë:** My name is August Enzoë and I sit on the wildlife management board for  
9 Łutsel K'e.

10 **Bertha Catholique:** I am Bertha Catholique. Originally I am interpreter/translator and I have  
11 been involved since before the Diavik mine had started and now they put me as  
12 participant and I don't feel right sitting here at the table. I am supposed to be  
13 back there (points to interpreter booth).

14 **Janet Murray:** Transcriptionist and I have been with the TK Panel for 2 years.

15 **Colleen English:** I worked for Diavik for about 10 years and I now do some consulting  
16 back to them. I have been involved with the TK Panel since the start and  
17 environment is also my back ground, similar to Gord, so I am here to sort of  
18 help with the Panel and do a lot of the behind the scenes work.

19 **Mike Francis:** Mike Francis from N'dilo.

20 **Louie Zoe:** My name is Louie Zoe, I have been with the TK Panel for quite a while so I am  
21 just trying to catch up and be able to have a good closure plan. And talk to  
22 what the elders are looking for into the future.

23 **Janelle Nitsiza:** Janelle Nitsiza. I am from Whatì was with the Panel in 2013 when we  
24 went to visit the site.

25 **Dora Migwi:** Hi my name is Dora Migwi and I am an elder from Behchokò. I have been  
26 participating as an elder regarding the closure plan and the TK Panel. And  
27 although I was scheduled to go to the fish study this past summer, there was a  
28 problem with the community so I stayed behind but I am happy to be back.

29 **Phoebe Rabesca:** I work for the Tłı̄ch̄ government, and I am just new on the Lands  
30 department. I was in finance for 10 years it is my first time here.



## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Nancy Kadlun:** My name is Nancy Kadlun, I work with the visitor's heritage center and  
2 I am so happy I made it to Lac de Gras this summer.

3 **Ethan Kadlun:** My name is Ethan Kadlun from Kugluktuk and I am new to this TK  
4 Panel.

5 **Bobby Algona:** My name is Bobby Algona. I am from Kugluktuk and I have been with  
6 Diavik ever since they started up right from the beginning doing environmental  
7 work and then from there I've done a lot of group sessions like this right from  
8 the beginning. Closure programs, ongoing programs, I do a lot of those and  
9 hoping that this will be a more communicative part that we have always been  
10 working together and trying to come up with ways of helping Diavik with their  
11 ongoing programs and closure programs. Thank you.

12 **Ed Jones:** My name is Ed Jones. I am a North Slave Métis Alliance elder I have been  
13 involved with this since the beginning but missed one or two meetings that  
14 were held on site.

15 **Kathy Arden:** Hello my name is Kathy Arden I am with the North Slave Métis Alliance and I  
16 am new to the TK panel although over the years when Diavik first started I was  
17 sort of on the other side of the table taking the notes and so it's going to be nice  
18 to see how far the TK Panel has gone and hopefully I can put in some input  
19 with you guys too.

20 **Joanne Barnaby:** I am one of the facilitators, I have been involved with Diavik in  
21 different ways. First of all helping communities prepare for the meetings and  
22 the hearings in the early days and I did some cross-cultural training work for  
23 them. I have been with the Panel about 4 or 5 years now.

24 **Natasha Thorpe:** I am Natasha Thorpe and like Joanne I have been involved with the TK  
25 Panel since it started. It was first run through EMAB then through Diavik, and  
26 my personal goal is trying to bridge western science and Traditional  
27 Knowledge.

28 House keeping issues, bathrooms are down the hall, keys are on the table.

29 **Colleen English:** Just if we did hear a fire alarm just go up the stairs and meet at the back  
30 parking lot.

31 **Natasha Thorpe:** Gord will talk first.

32 *Presentation – DDMI Closure Overview (Appendix F)*

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Gord Macdonald:** So what I wanted to do is to give a presentation at the beginning of  
2 every TK Panel. How many people have not seen the site? And how many  
3 people have not seen the closure plan?

4 As we go through the next few days I am not going to be here the whole time  
5 but I am across the street so I can come back.

6 PKC is where the waste kimberlite goes and we spent a lot of time talking  
7 about the North Country Rock Pile where the big boulders go. We talked about  
8 re-vegetation, you made some helpful maps and the women won. That was the  
9 best example the TK Panel has done so far because it's something we can use  
10 now.

11 Back to the focus of what we want to look at today. We have heard the water is  
12 equally important and we need to have a landscape where the water is in a  
13 condition that doesn't affect the fish and wildlife. We have been monitoring  
14 and in the future when the operations have stopped, we need to figure out how  
15 that may change. And how we would monitor into the future so from a time  
16 perspective, 2015 is almost over and I keep thinking that 2024 is a long time  
17 away but it comes so quickly. So that's when commercial production would  
18 stop. Then it would be 2025 when we would really want to start monitoring  
19 how this closed system would affect the wildlife and fish.

#### 20 *Presentation on screen*

21 How we got here. What it looks like right now. I have been involved with  
22 Diavik 20 years this is the slide we took to the communities back then. Then a  
23 slide that shows what it looks like now. They are largely the same. One of the  
24 main reasons it didn't change is because it is on an island. But again just the  
25 main pieces of it, the pits, then the rock pile. In the very middle of these (pits)  
26 is where the kimberlite is. North inlet used to be part of the lake but is now part  
27 of the island and is where all the water is stored before it is treated.

28 Closure goals.

29 -Land and water that is physically and chemically stable and safe for people,  
30 wildlife and aquatic life

31 -land and water that allows for traditional use

32 -final landscape guided by Traditional Knowledge

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- 1 -final landscape guided by pre-development conditions
- 2 -Final landscape that's neutral to wildlife-being neither a significant attractant  
3 nor deterrent relative to pre-development conditions
- 4 -maximize northern business opportunities during the operations and closure
- 5 -develop northern capacities during operations and closure for the benefit of the  
6 north, post-closure
- 7 -final site conditions that do not require a continuous presence of mine staff
- 8 Overview of closure plan by area
- 9 -North Country Rock Pile
- 10 -PKC - consistency of toothpaste, wanted to know the chemistry of that  
11 material, has been sent to a company in Saskatchewan and I will update later  
12 on this week.
- 13 -North inlet- built a dam across so we could use the pond as part of our  
14 treatment plant. Material has settled on the bottom of the north inlet.
- 15 -Buildings need to go somewhere – off site or into landfill, Wind towers?? Will  
16 they still have value in 10 years?
- 17 -The pits and the underground – the road around it is actually a dam, the brown  
18 part used to be the bottom of the lake, want to fill the pit with water for shut  
19 down. The deep portion is not usable as it is too deep for freshwater fish but the  
20 edges are usable.

21 **Kathy Arden:**What was the discussion about possibly partially filling that hole so it wasn't  
22 so deep??

23 **Gord Macdonald:** You mean filling it with rock?

24 **Kathy Arden:**Yes from the North Country Rock Pile.

25 **Gord Macdonald:** We have had that discussion many times and the answers are it's not  
26 something we could do practically. It would be prohibited expensive to do and  
27 it was discussed from the very beginning that, that isn't an option for us. The  
28 only way it might have worked, and it wouldn't work at this site, is if the  
29 sequence of mining is that you're finished in one before you dig the next one

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1 and you can directly fill it that way. But all of our pits are still working because  
2 we've got underground mining underneath them so you can't fill them back in  
3 while you've got all of the mining going on underneath it, so it doesn't work at  
4 this site.

5 **Kathy Arden:** So now your North Country rock pile there, are you going to reform that to the  
6 land? Is that what the plan was?

7 **Gord Macdonald:** Yes we are going to soften the slopes so that caribou can get up them  
8 and people can get up them but mostly so that it's chemically safe, so that any  
9 water that lands on it will stay in it and not come out.

10 **Kathy Arden:** So it will be a big hill. Okay, because you were talking about melting the ice  
11 and all that because right now we have a lot of this environmental warming  
12 things going on and is that a factor that you have in your formula?

13 **Gord Macdonald:** Yes it is, good questions. So the pits will be filled back in with lake  
14 water.

15 **Natasha Thorpe:** The water will sit in there 5 years.

16 **Gord Macdonald:** We will fill it but the dikes will still be fully in place so we can do all  
17 the testing before we reconnect it to the lake. Build fish reefs but no fish could  
18 go there until everyone is comfortable.

19 So that is just an overview for you.

20 **Ed Jones:** Gordy I am just wondering at this point, well your plans look pretty good and  
21 what I want to say is, how can the TK Panel help you because we have never  
22 had this problem before?

23 **Gord Macdonald:** Yes that is true but you also don't know what information that you do  
24 have that you can share with us that will help us. Honestly take what a good  
25 fish habitat is like. That's something you know you have, you've just never  
26 applied it to this kind of a problem before. Same thing when you evaluate water  
27 and say it is good or bad, how do you do that? How do you evaluate something  
28 in a natural landscape, and can you use that to do this?

29 **Colleen English:** With water quality as well - with water on the island and also the water  
30 in the lake - you can help in terms of where you would sample and why, and  
31 what you are looking at based on what you would normally see.

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1 **Gord Macdonald:** Also I am very happy to have the Panel say that you want science  
2 information on something like water chemistry and that's the information you  
3 need. Then we will make sure that we provide and explain that.

4 **Nancy Kadlun:** Just wondering about if you have to fill it with water and it's going to  
5 be very contaminated from the man-made dike and all the birds get in there and  
6 have that water that would be bad. Or can we just leave it the way it is?

7 **Gord Macdonald:** All of the information we have is that it won't be bad water. It will  
8 actually be very good water. But that is the question that everybody has and we  
9 will talk a bit more about the studies we have done to test what the water is  
10 going to look like. That's why we want to fill it before we connect it. If we just  
11 left it, it will fill up with water, but it will just take a long time for it to fill, and  
12 it also won't be as good of water. It will be from deep in the ground, not like  
13 the water in Lac de Gras, so we would like to fill it up quickly with good water.

14 **Louie Zoe:** I'm concerned about not only the open pit that we see right there. I can see that  
15 the company has gone underground and how they got there and then the water  
16 is going to connect to all the tunnels under there. So what type of materials  
17 have been left behind like air pressures, connecting to the underground steel  
18 pipe and all that stuff that might be left behind that might be causing some  
19 contaminations. And so these are things we've thought of before.

20 **Gord Macdonald:** Under both of the pits there is substantial underground workings that  
21 would get filled and we would be leaving materials behind exactly like you  
22 said - pipelines, ventilation - which we don't think would be a problem for  
23 contamination. What we do need to remove is all of the motors or anything  
24 with hydraulics, fuels, or lubricants that could get into the water. What we  
25 would be removing is anything that could contribute to contamination. Once  
26 we have approval, again maybe we need to have you come walk through the  
27 tunnels and see that what we have left behind is okay to leave. Then we would  
28 fill it up with water.

29 **Phoebe Rabesca:** If it's not filled with water then you say bad water is going to come up. I  
30 just want to know where is the bad water coming from and where is the  
31 contamination from and what kind of contamination is going to be in it and  
32 from where?

33 **Gord Macdonald:** The deeper you go into the ground, the saltier the water gets. Its natural  
34 but not what we see regularly, more like ocean water. We are a fair ways down  
35 in the ground now and we measure water down there and that is much saltier

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1                   then what Lac de Gras is. So if we leave the pits they will fill up with that  
2                   saltier water, that's the bad water.

3                   **Natasha Thorpe:**     Any other questions?

4                   **Bertha Catholique:** When was the whole discussion on the open pit because I remember  
5                   when it was first started when you guys were going to go underwater and make  
6                   a dike and make an open pit. Then a lot of people in Łutsel K'e didn't want that  
7                   because what they are saying is that you guys are digging a hole in the ground  
8                   making it like a big scab on your arm and then you are going to fill it up with  
9                   water and the concern was to fill it back up, leave it the way it was. Is it too  
10                  expensive to do that or is it expensive to take the rocks out and leave it like  
11                  that? So that is my main question: is there any discussion around how we can  
12                  heal that sore that you guys made?

13                 **Gord Macdonald:**    The discussion about putting the rock back into the pit comes up every  
14                 time we have a discussion about closure. Yes, the answer is it is too expensive  
15                 and we said that right from the beginning, back in 1996, 1998 that we couldn't  
16                 heal that hole once we did this.

17                 **Joanne Barnaby:**    If there are no other questions.

18                 **Fred Sangris:** I just walked in. I wasn't here early in the morning but I heard about this  
19                 reclamation and heard about the water being filled in years ago but the water  
20                 quality on that lake is very good, Bobby and I drank water from that lake, we  
21                 ate fish from that lake. But the surface of the ground is all natural but once the  
22                 grinded rock and materials is disturbed this is also a chance for salt and acid  
23                 runoff. So I just want to know if that's filled in with water and the fish come  
24                 around to spawn, is that going to affect the spawning area or is that going to  
25                 affect the fish? What kind of contaminates is on that rock because I am sure it  
26                 has some sort of effect.

27                 **Gord Macdonald:**    Our biggest worries are the pit walls themselves, the chemical reactions  
28                 that have been happening on the rock walls being exposed that will get washed  
29                 into the water when we fill it up. So we did a washing experiment, washed the  
30                 walls then tested the water, is that water still good for the fish. There is lots of  
31                 good water coming in, and not a lot of chemicals are going in it. What we  
32                 found from our water studies is that it will still be very good water because  
33                 there is so much Lac de Gras water going in with so little material coming off  
34                 of the wall. It was also raised about hydrocarbons what happens? The last thing

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1 I want to do is fill this up then find out its bad water so we don't want to do  
2 that either.

3 **August Enzoë:** We have been working on this closing part from the start and we did  
4 have a lot of input in there on how it should be done and that's really good. The  
5 sample of water there and rain goes in and out you didn't mention that, rain and  
6 snow water.

7 **Gord Macdonald:** We measure the amount of rain water and how much snow falls; we  
8 measure snow chemistry but not rain water chemistry.

9 **August Enzoë:** The snow and rain once it's in the water I mean.

10 **Gord Macdonald:** Yes, we do test that.

11 **Bobby Algona:** I am hearing again how these pits are going to be reclaimed, living  
12 downstream from all of this mine fall out that we are experiencing. Hearing the  
13 chemicals that are going to be staying under that water for many many years  
14 and I am wondering if you are thinking about leaving that dike for several  
15 years and studying that water quality. And you're telling me that what if this  
16 water when it's filled up very soon, it might become a problem, that would  
17 become a problem for us, too, downstream and you are telling me that it is very  
18 expensive to process it to clean that how you want it. That might be expensive  
19 for you but what if that water gets all contaminated and runs downstream into  
20 Kugluktuk - isn't that going to be more expensive then what the mine is  
21 proposing to do?

22 **Gord Macdonald:** That's exactly why when we fill it up with water we won't be putting  
23 holes in the dike until we know that that water is good. So you can take  
24 Kugluktuk as the best example; we don't want to release that water into Lac de  
25 Gras until we are confident that it is good. What if we are wrong what if we fill  
26 it all up with water and the water isn't good, and then we have to run it through  
27 a treatment plant and replace it with clean water until we can get it to that  
28 point? So I think Kugluktuk should feel safe. Bobby you are going to be the  
29 guy that we are going to be asking, "can we put a hole in it?"

30 **Bobby Algona:** In the mean time when you fill these pits with water and it comes to the  
31 top that the level is what you want or the level that is stable what about those  
32 animals that want to go though the dike and like caribou or wolves that want to  
33 drink that water. Are people going to be monitoring on a full time basis until its  
34 good water?

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1 **Gord Macdonald:** That sounds like a very good recommendation. Absolutely during that  
2 period particularly if the water is poor for some reason and if it's bad enough  
3 that it would be a problem for wildlife we would definitely have to have that.

4 **Nancy Kadlun:** I am just wondering when you said if it just fills up over time and just  
5 leave will it over flow? And if you can't do anything about it then who will  
6 clean the lake?

7 **Gord Macdonald:** It won't over flow, the water will only come up to the same level the  
8 lake is at now so it won't over flow. And who's responsible for cleaning up the  
9 water in the pit? We are.

10 *Break 10 mins*

11 **Joanne Barnaby:** For the past two days some of us have been meeting, those that went to  
12 the fish camp have been meeting. We have also been reviewing the report that  
13 we've been writing up and we also have been reviewing the video that is still a  
14 work in progress that you will see later on today.

15 Bobby and August have agreed to present.

16 *Presentation – 2015 AEMP TK Camp Overview (Appendix E)*

17 **Bobby Algona:** We have been going to the TK Camp for the last few years and it's  
18 good to have the ongoing program with TK. I am pretty sure we are coming up  
19 with something new and doing some things that we are learning as TK holders.  
20 As TK holders we can only do so much as to say that all our traditional  
21 knowledge that we have come to know out on the land is being kept alive and  
22 well. And all of what Gord has been explaining over the last few years,  
23 especially the water seepage and air quality, and what the mine has been doing  
24 to keep our minds at ease as TK Holders over the years. This is one of the good  
25 things we have been doing the last few years, is testing the water, the quality of  
26 the water, testing the water, testing the fish and doing a lot of traditional  
27 knowledge stuff as well. Some of us have been doing a little bit of plant life as  
28 well. Madeline and the ladies have been doing berry picking and its really good  
29 to see and a lot of the things we have come to appreciate what Diavik has been  
30 doing for us keeping the TK camp going. Over last couple of months we have  
31 been doing the same thing we did in 2012.

32 In June we had a pre-program session about what we were going to be doing at  
33 camp and all the different ways we would be testing at Lac de Gras and from  
34 that we had a good insight on how we wanted to keep this camp going and



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1 what changes we might do in August. Come August we have been doing a lot  
2 of things we wanted to look at in June. Comparing it to 2012, there was not  
3 much different [in 2012] from what we saw this summer. But it's a good  
4 program, we need to do this water testing and look at the fish and the fish  
5 habitat and what the water is doing to the fish habitat. From that we look at the  
6 mine as when we come into the camp, we look at the dust from this camp and a  
7 lot of that dust goes into the lake because Diavik is on an island and most of  
8 that dust is falling into the lake. And we have been listening to all the scientific  
9 work that Diavik has been doing and we have all evaluated that as TK Holders  
10 and everything seems to be very well and the fish that we tasted was really no  
11 different from the last session in 2012 so that was really good and the water  
12 quality was no different from 2012. So that was good to see not many changes  
13 due to the activity from the mine and a lot of these programs that we have been  
14 doing is almost the same parameters from 2012 looking at fish and all the  
15 different ways that we have been preserving and putting our minds at ease with  
16 the scientific program. I think it's really good to work right alongside the  
17 scientific people as well. As TK Holders we've been out on the land and we  
18 learned a lot from our elders to keep the waters as clean as possible for today  
19 and tomorrow for our youth. And these discussions over the last few days like  
20 last time I think all this dedicating these programs to the youth and making the  
21 film and a copy of what we have been doing and dedicating all the hard work  
22 we have been doing over the last few years to the young people of today for  
23 tomorrow.

24 That is a really good thing that Diavik has been doing for us as traditional  
25 knowledge holders even though I have lived out on the land a lot we still forget  
26 to mention some things. A few new things can be learned through this program.  
27 I think there is a whole lot more things that we can learn from this as well and  
28 certainly as TK holders we have come to appreciate what scientists have  
29 brought as well. I think we need to work much more closely with the scientists  
30 as well so that scientists can learn from us as well as to how we came to learn  
31 these things. As TK holders we've come to appreciate all the helpful insights  
32 that our elders have been giving us for many thousands of years and to this day  
33 I think that in the future, hopefully in the future and all this water and the air  
34 and plant life and everything around the camp can be kept as clean as possible  
35 for all of us to share. As a TK Holder, I have come to appreciate a lot of people  
36 that I have come to know and come to work alongside with over the years and  
37 there is still a whole lot of things that we need to do as well, not only with the  
38 water but there are something's that we could really be looking at as well. I  
39 mentioned earlier that the ladies have been doing their part picking berries and

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1 looking at the plant life as well and maybe in the future or through these  
2 sessions we have been working on I think there are some ways that we can  
3 truly think about, maybe there are some things that we need to look at more  
4 closely. And that's what we have been doing over the last few years and if  
5 August wants to say a few more words.

6 **August Enzoë:** I don't know what I can add in, you almost said everything. This was  
7 my first year this year; I wasn't there 3 years ago. But I was there this year and  
8 they did pretty good. From my side [for a similar program in Łutsel K'e] in the  
9 spring time we asked for 2 youth and to me it didn't happen. I asked for 2  
10 youth, 1 girl, 1 boy and that didn't happen because of money. [At the Diavik  
11 camp] I had lots of fish. One whole week of it - lots of fish, boil it, fry it, cook  
12 on the fire, fish eggs we all had that for samples. It tasted good and the water  
13 we made tea and coffee and that tastes the same to me. You should taste just  
14 the water because if you have tea and coffee you can't taste it the same. Like  
15 Bobby said there's lots of dust going into the lake. I went up the hill and I  
16 touched the rock and my hand was just white from all the dust from the mine.  
17 So how far is it about 500 feet across or more I don't know.

18 We made a movie and the movie is really good [*We Fish Today, For Fish*  
19 *Tomorrow* available at:  
20 <https://vimeo.com/artlesscollective/wefishtodayforfishtomorrow>]

21 When we were fixing the fish that's a problem we all had because I couldn't  
22 hear what I was saying to the reporter. For the camp it's a good camp, I really  
23 enjoyed myself eating fish every day plus a good meal at night and breakfast.  
24 For the next time I did mention yesterday when we were in the other meeting  
25 we should try for one night to have nets on both sides of that island, just for  
26 one night, just for a sample of the fish that are closer to the mine.

27  
28 **Joanne Barnaby:** Thank you August. I was just looking around the room to see who else  
29 was at the camp.

30 **Ed Jones:** I wasn't allowed to go because I have macular degeneration; I am slowly going  
31 blind so they didn't want me on the property.

32 **Joanne Barnaby:** Yes I guess they were worried about your safety.

33 **Nancy Kadlun:** I couldn't wait to go to Lac de Gras after hearing about it so many  
34 years, especially when the mine was there for so long. I tried the water it was

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1 so good, pure water but again when the river goes down to Kugluktuk from all  
2 that mud, it's kind of thickened back at home you know from all the mud going  
3 down. But in that lake when you have water from the lake, the middle of the  
4 lake from the top, that's very yummy water. I like when camps like this happen  
5 because lots of our youth they don't know, they are not experienced, so when  
6 we have more youth that come to stuff like this they will learn more and they  
7 will want to do more.

8 **Joanne Barnaby:** It was really unfortunate that we didn't have as many youth as we  
9 wanted then but I am really glad we have more youth here today.

10 Any questions or comments regarding the 2015 camp? Fred did you have any  
11 questions or comments?

12 **Fred Sangris:** Last time I ate fish there I am still full from it, that's how good it is. I think  
13 over time in that area we have water quality that is coming down from  
14 Contwoyto right through to Lac du Sauvage and right onto this lake [Lac de  
15 Gras] and it drains on through to Coppermine River. We were there at one time  
16 and we wanted to try everything out including water quality to make sure the  
17 water didn't change at the time of the operation of the mines and we wanted to  
18 see if there were any changes in the fish as well. Because when water quality  
19 changes in lakes, the taste of the fish changes to. We know that because of our  
20 own experience here in Yellowknife Bay. There are lots of rubber boots in the  
21 bay here, they don't taste that good. When the water quality is good, its good  
22 and we don't want to make changes to it because there's life in the water. The  
23 aquatic life, the fish, and there is little critters that the fish depend on, it's  
24 underwater too. Those are the food for the fish and it's very important. If the  
25 food is not there then the fish aren't going to be there. So I think when you are  
26 studying fish and you are eating fish and you are looking at the texture and the  
27 quality of fish you also want to make sure the food source of the fish is not in  
28 any way affected or impacted from the mines. We want to make sure that the  
29 fish continue long after the mines are gone and we want to make sure the water  
30 quality doesn't change. And that's why we are involved; to make sure that it  
31 happens. But like any other mines in this country, mines can have some impact  
32 and affect to water and land and we are concerned with the reclamation with all  
33 the rock pile, the acid run off and it could be as well from the blasting and the  
34 ammonia I forgot to mention that on the walls of the open pit. We need to do  
35 more studying on it to decide if the ammonia and the dynamite blast is still  
36 staying on the walls so we need to know that so it doesn't have an effect on  
37 future spawning. Because long after the mines leave the fish are going to

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1 continue to live there and continue to spawn and if the spawning areas is not  
2 impacted the fish will be there long after we are gone and that's what we want,  
3 the quality of life for the fish that was there when the mines first came in. After  
4 the mines leave we want to make sure those things are still the same, not  
5 changes to it. So I think for us and the scientists and the mines that we are  
6 working together to make sure that we understand that not too many changes  
7 are taking place. That is what we want and I think that is what we did in 2012  
8 we tasted a lot of different fish, all different sizes, we tried cooking it different  
9 and we tried to get the taste of the fish and made some tea.

10 When the water changes there is a scum around the cup, you know when you  
11 go camping and you go to little ponds and you have to make tea and you see  
12 the scum after drinking then you know there is something there, there are  
13 changes in the water and that's what we try to watch for at Lac de Gras when  
14 we make tea. But we didn't see a lot of that so to me it means that even though  
15 the mines are operating across, there hasn't been too many changes but it's  
16 always important to continue to monitor and keep doing this kind of work so  
17 that when the mines close down and the reclamation happens you want to make  
18 sure you leave that place in a good way so that you know you walk away from  
19 something that didn't have too much impact. You want to make sure the  
20 continuation of life and wildlife quality is going to be there forever. We are on  
21 a mission looking for truth, that's what we are trying to find out, we are  
22 probably in the middle of it probably beyond it, because there is going to be an  
23 end life to that mine and we are working with it to make sure that these things  
24 are studied and that we understand it.

25 **Joanne Barnaby:** Thank you Fred, that is actually a really good lead in because we are  
26 looking at what kind of monitoring should take place once the mine closes and  
27 we have this program that runs every three years that we should look at how  
28 that might continue after the mine is closed. We need to look at issues like  
29 where should a camp be set up, how would we maintain that camp, how would  
30 we pay for going out there to do this fish and water tasting and testing. Should  
31 it continue to be both TK and science and these are the longer term issues that  
32 we need to figure out we should look at where there should be sampling sites,  
33 we can look at where they are now and where they should be after the mine  
34 closes and there are some questions in the air about the future and how do we  
35 continue and what is it that our own organizations from home want to do and  
36 all the different Aboriginal peoples and how do we maintain the collaboration.  
37 These are the issues we want to focus on this week. The closure and post

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1 closure and how to make sure that someone is keeping an eye on the fish and  
2 the water.

3 **Ed Jones:** After the mine closure I believe that the monitoring of the water quality should  
4 be done by the government who are independent of Diavik; they can  
5 periodically check the water quality and report back to the public. I don't think  
6 they should allow Diavik to do this, because I really don't trust mining  
7 companies, to be truthful, I don't.

8 **August Enzoë:** I was at the table way back since the mine was started, 1997 or 1998.  
9 Albert was still with me, Eddie Jones is still with me. All those words we've  
10 been saying towards the mine, the Elders, how it should be done for the record.  
11 Way back me and Eddie found out that the mine at Diavik wasn't doing what it  
12 said it would in those days. The Elders that were with us from Rae and  
13 Yellowknife and Łutsel K'e and not one of them is with us now, well Eddie is  
14 with us. We put a lot of work into the mine about how it should be done in the  
15 future. Like right now the round table is all new ones, newcomers for me and  
16 they don't know too much about what we said way back. That's how it sounds  
17 for me. That is what I would like to mention that to you people.

18 **Colleen English:** I just want to respond to Ed's comment. Mostly Diavik staff -  
19 employees, some from the communities and some from Yellowknife - they do  
20 the actual samples. We bring up guys like Bobby sometimes to help us out with  
21 different programs and they take the samples and then we give that information  
22 to independent consultants who then make that into a document that basically  
23 says to the people like the Land and Water Board, and that is given back to  
24 communities as well, this is what the water quality is like. At the same time,  
25 the government does come up to the mine. Inspectors come to the mine site and  
26 they take their own independent samples as well. I get your concern, but there  
27 is definitely overlap.

28 **Natasha Thorpe:** I would add that the community based monitoring that you will  
29 continue to do is a big part about how Diavik decides to do things. One  
30 suggestion from here, from Ed, is that we should be monitoring in the future, so  
31 do you mean Aboriginal governments? If so, how do we move forward once  
32 Diavik is gone?

33 **Ed Jones:** I did not fully explain myself, what I wanted to say is that the government  
34 holds a bond for the cleanup and Diavik shouldn't have to monitor after the  
35 closure because the government holds a bond and does have the money to do  
36 that.

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1 **Joanne Barnaby:** Perhaps Colleen in answering that question you can also outline  
2 Diavik's commitments in terms of monitoring after closure.

3 **Colleen English:** The bond is actually for instances like Giant Mine where the company  
4 walks away. The bond, ideally, Diavik does not want to cash in on that bond.  
5 They don't want to hand over that money and have the government do  
6 everything. Diavik wants to be doing that work until the mine is done and  
7 closed. So the bond is there as a safety net and it's only really a safety net. It's  
8 not meant to be used unless something dire happens with the company and you  
9 get bailouts and bankruptcies and that sort of thing. With Diavik's mine plan  
10 right now, the mine closes around 2023 and the current plans have monitoring  
11 that extends another 5-7 years beyond that to make sure that everything is  
12 functioning properly before the company is completely done. And then the  
13 reality that we don't really know yet, I think, is what happens beyond those 7  
14 years. No one knows what the obligations would be, do you come back a  
15 couple times a year? Do you come back yearly? The governments here haven't  
16 had a mine close properly so it's a tough question. What is the point where we  
17 can say, 'yes, we are all happy and we are done?' These discussions help with  
18 defining that.

19 **Mike Francis:** The water in that hole, samples and everything, I just want to know if  
20 they are going to change the water later or stay there forever.

21 **Colleen English:** Do you mean once they put the water back in the pit, are they  
22 reconnecting??

23 **Mike Francis:** Are they going to change the water if it's contaminated.

24 **Colleen English:** The way that Diavik is planning to do it now is to bring the lake water  
25 in to fill up the pits. They'd keep it in there for about 5 years and it should be  
26 good. They wouldn't need to change that water again. What Gord was talking  
27 about is if they saw something that they didn't expect, something that was not  
28 good, then they would need to look at taking that water out, treating it, then  
29 putting it back. So that's why they want to fill the pit and leave it to see how it  
30 goes for a few years, and monitor to see how it's responding. Because you can  
31 plan all you want, but things can happen, so you want to have protection and a  
32 buffer before anything goes back into the lake.

33 **Natasha Thorpe:** Tomorrow our discussions are supposed to focus on really getting down  
34 to it in terms of exactly how and where Diavik should be monitoring water  
35 quality around East Island post closure, once things are covered up and things

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1 are reclaimed. Then in the afternoon I am going to get down into the details  
2 around when the waters are reconnected; what should the shoals look like.

3 Who, what, where, when, how 2022/23 Diaviks closes, 2023→2030 Diavik  
4 monitors 2030→ Then, what, how, who, where, when????

5 Some have said they don't want to taste the water after they are reconnected,  
6 they would rather the scientists monitor the water.

7 **Nancy Kadlun:** It would really help to let people still go because who do we trust?

8 **Natasha Thorpe:** Your organization, yourselves.

9 **Nancy Kadlun:** They still have the same things that we did so continue camps like that  
10 so people and the youth would really understand if our water is still good or is  
11 it not good anymore.

12 **Natasha Thorpe:** If you still want to do that camp and Diavik wasn't doing it anymore,  
13 how would your organizations work together? Any suggestions to make that  
14 happen?

15 **Louie Zoe:** We are talking about the importance of the water, this is our land. That our land  
16 won't be so disturbed that we'll have it forever and we are not talking for  
17 ourselves we are talking for our future, that we would always have the water  
18 clean. And the company and the development and how they use the water, we  
19 don't know, and once the water gets into the open pit and it gets over flowed  
20 and all the water gets into the big lake again and then water will be traveling  
21 into our lakes and ponds. When there is rain and snow that goes all over the  
22 place once the water gets contaminated it would be hard to get fresh water  
23 again. We know from the examples from other mines that I have been traveling  
24 with other people and this one mine there are some people and other places  
25 they said that once you contaminate that water it's not going to get clean and  
26 fresh again. That is what we are being told by other people from other areas.

27 **Fred Sangris:** It's true what we say about the open pit how it can be monitored. For a number  
28 of years we have been working on this project and we go to the site. Our  
29 concern has been that in the beginning of the mines is that there will be less  
30 impact and we want to be involved and that is what we are doing, we are  
31 involved. Once the reclamation, the mine closes and the reclamation begins,  
32 then the mines will be gone. So we have to find a way where we can continue  
33 working on this project long after they are gone. But there should be some  
34 dollars so that our communities can continue that work. Coordination would be

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1 kind of difficult but if someone was to send us a letter saying get some elders  
2 and youth up there, then we will make that trip. I think it's possible because we  
3 need to still be involved long after the mine closes, we need to continue to  
4 make sure that the water quality and all the plans is doing what it is suppose to  
5 be doing. I know that the Elders don't want to drink the water there because  
6 there is still residue from the dynamite on the walls of the open pits, ammonia  
7 and so on, so I wouldn't want to drink it anyways but I think the idea of getting  
8 samples or continued study on that would probably be good. The pits  
9 themselves have to be studied, get the water, get it studied to check that the  
10 water is still the same or if there are any changes happening to it we need to  
11 know. But I think a lot of us here are not going to continue to be involved;  
12 most of us will probably move on but I think it's important to bring our youth,  
13 get them involved, educate them, they need to continue to be involved so that  
14 the monitoring can continue and the reports can come out and they can  
15 understand the reports so that 2030 maybe continue into the future, we don't  
16 know when is the end.

17 We have Mary here who is a youth with the Yellowknives Dene and I think  
18 people like her are very important. Every organization should have an Elder  
19 and maybe two youth so that you know when we kind of disappear and fade  
20 out, they'll be the people to continue and ensure that water monitoring and  
21 quality is there. The plans are doing what it is supposed to be doing. If we  
22 don't get the young generations involved then they'll have no idea of the  
23 diamond mines that have had an effect on the past. What we are trying to do is  
24 work with the industry to make sure what they leave behind is going to be good  
25 in the future, and it's not going to have so much impact. But it's the  
26 generations that have to be involved to make sure that those things are done  
27 properly. For how long, I don't know, but I think maybe 2030 could be a target  
28 date, maybe 8 years after the mine closes. Continue that work but Mr Jones  
29 said that the Federal government's got the bond so my question would be  
30 whose going to pay for it after. Who will bring up the dollars to continue to pay  
31 for this kind of work?

32 **Joanne Barnaby:** Thank you Fred. We have the Environment Monitoring Advisory Board  
33 that is set up through Diavik and this Panel worked under for a few years until  
34 it started working under Diavik. EMAB or an organization like EMAB might  
35 be the tool that we need to continue past closure. I know everyone has their  
36 own experience with EMAB but the whole idea of an organization like that -  
37 that does represent or has representation from the communities and that has the  
38 mandate to monitor and that brings all of the different cultural groups together -



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1 that might be the kind of tool that we could use into the future. The question is  
2 who would fund this. Currently all its funding comes from Diavik, so we'd  
3 have to look at that and we would have to look at whether Diavik is prepared to  
4 make longer term finding commitments to an organization like that, or whether  
5 it needs to shift to a partners funding model where a mix of public governments  
6 or Aboriginal governments and perhaps Diavik, in a smaller way, contributes to  
7 the work.

8 **Bertha Catholique:** The concern I have is who is going to monitor after the mine is all gone.  
9 So what I would recommend is we should start training our youth today to be  
10 the monitors and the keepers of our land. That's the only way that we could  
11 teach them how to look after the land so it can be a continuing thing and we  
12 could sort of build a big school or something in the north here where we could  
13 teach all this monitoring. Because they are monitoring stuff and they are  
14 analyzing it, like the fish, they have to take it out to wherever they are looking  
15 at the fish for contamination. Maybe they should have a building like that here  
16 in the North where it won't be so expensive and then our youth and our  
17 communities will all be under one roof so we won't get stuck. Like where the  
18 money is going to come from if something is contaminated and everybody  
19 walks away. Like right now what they are cleaning up after the first mine that  
20 came to the North. They made all these messes now they are cleaning it up. We  
21 don't want that to happen. So we need to come up with ways to teach our youth  
22 right now or even in schools, make curriculum. But they have to see, the Elders  
23 are always saying when you are teaching someone on paper if you don't really  
24 know how to read and write you can't understand it and you are shy. I was one  
25 of them. Because I was always told don't ask too many questions. So I was that  
26 person and then I became an interpreter so I would talk all I want but it's not  
27 coming from me. I think a big school would be good.

28 **Natasha Thorpe:** I think any of us who has worked with youth gets that feeling of the  
29 responsibility of making sure that they are inspired and have a passion for  
30 something, whether it's interpreting or fish analysis, because that's what keeps  
31 the future moving forward. You'll see in the video that we play that one youth  
32 in particular talks about making this realization or connection of how interested  
33 he is after spending a few days out on the land. It's very true that's how we are  
34 going to make people, youth, inspired to monitor long into the future.

35 **Dora Migwi:** I've been attending a few meetings like this. I have heard clearly what you  
36 guys said that we love our land and to protect our land and our environment,  
37 animals, that everything will be safe. We all come from each region in the

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1 community and something is contaminated and the water - what about the  
2 animal, it will affect the animal. Today we have all kinds of scientists and these  
3 doctors and they work along with the TK people. Into the future the young  
4 people sitting here today, and there are not much Elders in the community,  
5 there are only young people today in the community. That's all it is in my  
6 community, there's times that if there is a meeting going on we have two youth  
7 coming to the meeting so they can learn from the meeting. I am very thankful. I  
8 have a lot of grandkids so I couldn't go but I feel really comfortable and a lot  
9 of information is coming from the communities and we care for our land and  
10 water. I can't sit back and say nothing.

11 **Janelle Nitsiza:** I am really thankful for what Dora just said. The bond between Elders  
12 and youth is really important. I know from experience because I was raised by  
13 my mom but I was also raised by my grandparents and I just lost my grandma  
14 last week. So you really need to love your grandparents because they are a  
15 textbook of knowledge for us. Any questions that I ever had for my grandma  
16 she always knew the answer. I am grateful for what she taught me. And I am  
17 grateful that these Elders really want to incorporate youth because, as a youth, I  
18 really want to be involved and I really want to learn more. I am not the greatest  
19 with landscape or navigation but I am only 21 so I have lots of time to learn. I  
20 am just collecting stories from these Elders; I have collected so many stories  
21 from my grandma. I have traveled the Tłı̄ch̄o region for work so I was  
22 fortunate enough to gather lots of stories. Even though there is a language  
23 barrier I always find a connection to them and the recommendation for youth is  
24 laughter; laughing with elders and making them happy, because when you  
25 laugh you build that connection and that's how I built my connection with my  
26 grandma was by laughing and telling stories.

27 **Bobby Algona:** It's really wonderful that some of our youth can really speak up. That's  
28 what we are here to do and when we are coming to meetings just ourselves as  
29 Elders it gives us ideas on what we want to do in our communities to help our  
30 children and our children's future as well. When I come to these meetings I  
31 often think of ways . . . we're not going to get away from the mining industry  
32 in the near future. I am always coming up with ways of teaching our younger  
33 generation back home and these are the things that we need to teach our young  
34 generation. It's really wonderful that we have come up with water quality  
35 monitoring programs and have CD's and books that we come up with.  
36 Sometimes, just on my own, I go to the school and talk to young students. And  
37 sometimes I get asked to go to the school or get asked to come to a meeting in  
38 the community and I give a little insight about what the mining industry is

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1 doing and how our organizations and the Elders that we work alongside with,  
2 with the mining industry itself, we give a little insight to our young students. In  
3 the future having these CDs would be a really good tool. I have these tools  
4 now, these CDs, that I can work with to show a classroom what we are doing  
5 for our children when we come to the mining discussions groups/workshops in  
6 our communities. And give a little insight about what the dangers might be and  
7 to get them to think a little bit about what your future might be with what the  
8 mining industry is doing and how the mining industry as well can help the  
9 youth with a program or what they might be doing in the future. That's a most  
10 wonderful thing that we can do as Elders. We can have these tools that we can  
11 bring home and it makes it a whole lot easier to explain to the young generation  
12 with these tools. And I myself have my own CD I put together myself of an  
13 outpost camp. I have an outpost camp that my family go to every year. Even  
14 though our family portraits are just family portraits I tend to use these as tools  
15 now that I bring to these workshops. Sometimes I get to show it a little bit to  
16 the group sessions that we have here, what the land means to me and my  
17 family. I use this as a tool to present to the mining personnel as well. I've been  
18 working with the mining personnel for a very long time; sometimes it's hard to  
19 tell them how I do things out on the land. My pictures start to come in handy  
20 when I start to try and explain things that I do with my family, what I need to  
21 do, what I need to teach my family out on the land. But I've come to use these  
22 tools that I came up with, these family portraits, to show the mining personnel  
23 about what I do and what I do out on the land and what the land means to me.

24 **Natasha Thorpe:** Thank you Bobby. So maybe when you are thinking about monitoring  
25 fish and water down the road it may be important to have those tools.

26 **Joanne Barnaby:** I've been involved in some work in the Dehcho region so that they  
27 could be involved in the monitoring. They have actually set up a program and  
28 its building slowly because they need to raise money and they need equipment  
29 and they need support to carry out the work they want to do. Łutsel K'e is  
30 involved in something similar - Keepers of the Land - and they came to the  
31 Dehcho and presented information on their program and shared their approach,  
32 which is something similar. The work is coordinated by the First Nation and  
33 the Elders committee and the Lands and Resources Committee that August sits  
34 on and they over see that and they train their young people with scientific  
35 techniques as well as TK. The young people go out by boat in Łutsel K'e and  
36 they are reminding people to be respectful. If they are noticing problems, they  
37 are reporting the problems to their community or to ENR if needed. And I was

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1 thinking that because we are all from different regions, an organization like  
2 EMAB that coordinates can maybe run that program.

3 **August Enzoë:** I was just thinking we are starting to get kids with us, the youth, and we  
4 should continue for their future. If we are gone they'll be saying behind us  
5 Grandpa was here once and they'll remember for their future. Because we  
6 won't be sitting along with them, we don't know how many years yet so I am  
7 really happy that we got the youth. Diavik could put more money, put a million  
8 dollars, towards the kids.

9 **Colleen English:** Just further to what Joanne was talking about, there are some really  
10 great programs that already exist in the North, and that Aurora College has  
11 organized as well. They had a BEAHR program where they would go out on  
12 the land, its environmental monitoring for youth that includes TK and also the  
13 scientific side of it. And it's amazing. We had gone and helped them out when  
14 I used to work for Diavik. I would go and do sessions with the kids and teach  
15 them about water quality sampling and then they would have Elders there. Also  
16 something that is very unique to the North is that you can get a certification as  
17 an environmental monitor based on hours working, even if you didn't go to  
18 school but you start working at one of the mines as an environmental  
19 technician or whatever. There's a program you can do through the college, you  
20 get a work book, you have to log your hours; you do all that and you become a  
21 certified monitor. That's pretty cool, and you can't really get that anywhere  
22 else in Canada that I know of.

23 **Natasha Thorpe:** I think August has spoken and let's take a break to eat.

24 *Lunch Break.*

25 *Video of AEMP TK Camp (25 minutes)*

26 **Joanne Barnaby:** As we explained earlier, the video is not quite final. There is more  
27 editing to do and the title, which hasn't been determined yet, hasn't been  
28 selected. We were brainstorming some ideas for the title for the video and for  
29 the written report from the camp this year. We have lots of ideas but no  
30 consensus yet. So we are working on that. Some ideas also for distributing the  
31 video as well. Perhaps offering it to APTN, asking North Beat to do a story on  
32 it and of course getting it into our communities as well, hopefully to inspire  
33 young people to turn out for the next camp.

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1 **Natasha Thorpe:** You are the first official non-participant screening group here, so we  
2 are really interested if you have any comments or thoughts about the film that  
3 you just saw. Anybody want to say anything? Any suggestions for future  
4 activities?

5 **Dora Migwi:** Look at the lake itself, the Lac de Gras area. My dad used to trap around that  
6 area for white fox. My dad had travelled by dog team on the barren lands and  
7 my dad had lived with the Inuit people, people from back then what used to be  
8 Coppermine. While my dad was out trapping white fox before Christmas on the  
9 barren land, my mom and us were living in a tent on the tree line and we were  
10 young at the time. My mom was expecting a child and apparently it died there  
11 and he is buried out there on the tree line somewhere. So that's what happened  
12 while my dad was out on the land hunting. I am not saying my dad was the  
13 only one but there were a lot of people who were harvesting the white fox back  
14 then. I guess how those people trap the white fox is they use the caribou meat  
15 as bait, and back then, before my dad's time, I guess the people used to harvest  
16 the caribou hides for clothing and even to make tents out of it. So that's how  
17 they were raised and then they were using the firewood, they were using the  
18 small willows and small birch willows and that I guess throws a lot of heat and  
19 you cut them in bundles. So the days when my dad used to harvest a lot of  
20 caribou, all the families would use the hides to make mitts, mukluks and  
21 caribou meat. But nowadays things have changed and a lot of hunters that used  
22 to live on the barren land, especially the Dogrib tribe, they used to go out in  
23 July to the barren land to harvest dry meat and specifically to get the caribou  
24 calves when the hair is really thin enough to make a caribou hide parka. So  
25 remembering all that I guess brought back a lot of memories and the places my  
26 dad has traveled. I was too young to remember when my younger sibling died  
27 on the barren land.

28 **Joanne Barnaby:** Thanks so much Dora. Any other comments from people who haven't  
29 been out there, any suggestions for how we might do future camps?

30 **Bertha Catholique:** I was just thinking about us having one youth from each community  
31 and it was kind of hard for that youth to speak because they don't have another  
32 person from the same community. And to make friends it's kind of, they are  
33 kind of shy. So I would suggest that we bring 2 youth and 2 elders so they  
34 aren't so shy. I would suggest that.

35 **Joanne Barnaby:** In the planning meeting that we had in June before we went out, we  
36 talked about different things that the Elders could teach the youth but also  
37 things the youth could teach the Elders. So if you could think about that, too,

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1 that would be great. Over the last couple of days we talked about the people  
2 that went out, we talked about any changes that they might want to make and I  
3 think that there was a consensus that instead of boiling the water for tea and  
4 coffee, instead they want to taste it as pure water straight from the lake. So that  
5 is one change. Any other questions, comments? How did you feel about the  
6 video?

7 **Bobby Algona:** Once in a while, if not every other day now, I can't help but look at the  
8 TV and I look at all the things that are happening around the world and just last  
9 week or so we have come to learn that other companies are working on a  
10 climate change conference in Paris. And I am just hoping that they get things  
11 right now and start to realize that the industry itself sometimes really  
12 contributes to natural climate change itself. And when you look at things  
13 around us, I notice everything around us here, when I look at things, how many  
14 ounces to make this one tool that we use. How many ounces to make this one  
15 microphone that we use as a tool? And when you look at mining ounces per  
16 tonne. That's what I look at. How many ounces does it take to destroy tonnes  
17 of other ground and the natural ground that they are looking at. And when you  
18 look at Diavik and all the other mines, you look at all of that waste rock, how  
19 many ounces or carats do they get out of that rock. You look at how much rock  
20 is being moved and how much water is being used. I look at all that myself. I  
21 am just learning in my residential school days sometimes we get into a little  
22 discussion ourselves and in those days you look at all of the things you have all  
23 around us not just in this room alone. How many tonnes of rock or waste rock  
24 is being used to make this one tool or all the tools that we are using here to  
25 work with as tools we have. And there's another thing we've got going. Going  
26 to Toronto a couple of years ago I looked at the city, how many ounces, how  
27 many tonnes of waste rock to make that city. And how many cities are in the  
28 world right now? You look at that and you see what climate change is doing  
29 now maybe it is from the industry itself, we have to look at those things. I look  
30 at all of those things. Learning just from the TV that I have at home. I look at  
31 what is being done all over the world; people are destroying each other for the  
32 industry or what they do to make their country a little bit better for themselves.  
33 I look at the TV a lot. I learn from the TV by seeing what everyone is doing to  
34 each other in the world and I try to teach my children. Looking at all that, we  
35 need to think a whole lot more about the mining industry itself. We can't get  
36 away from the mining itself, I see very far into the future the mines are going  
37 to be ongoing all the time now, we cannot get away from it. I think even though I  
38 have a lot of qualms about the mining industry itself, then I start to look at a lot  
39 of other good tools that they make alright but I always think of something that

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1 we should be doing. And just from that TV at home alone or just from the  
2 school that I've come to work with in my residential school days, how many  
3 ounces does it take to make this tool and how much land has to be destroyed  
4 just to make this one little piece of tool that we use. Those are the things that I  
5 look at most every other day now.

6 **Joanne Barnaby:** Do the youth have any suggestions or would a program like this interest  
7 you in the future?

8 **Lucas Enzo:** I think the things that he said is true - that we destroy the world for all the  
9 technology we use and take for granted and it's still happening to this day.  
10 How many times will we destroy this earth just to get the tools that we want?  
11 Are we going to find an alternative way to make better tools for a greener place  
12 to help out the earth, or keep destroying the earth?

13 **Joanne Barnaby:** Thank you Lucas. Pretty big questions. Ethan did you want to say  
14 anything? Janelle?

15 **Janelle Nitsiza:** I like that Bobby touched base on the environment. I think what Diavik  
16 and all these mines really need to take into consideration is doing things more  
17 energy efficient now, not in the future, not when we are closing but now. Work  
18 on the little things, it's the little things that count; they make big things one  
19 day. So any little thing that we can do to help the environment because climate  
20 change is here, it's in our face, we need to deal with it now otherwise none of  
21 us will be here and its really serious. It's that serious that we could be the last  
22 generation to live on this earth and we need to take that into consideration.  
23 Even Justin Trudeau brought up that the world needs to learn from Indigenous  
24 people because we are still reliant on the land. We may be strong like two  
25 people, we live in both worlds, we live in the traditional world and we live in  
26 the modern world, but we need to come back and live more in the traditional  
27 world then we do in the modern world. I mean, I have said it before, I think  
28 post secondary education is very important but I think you need a PhD on the  
29 land before you go on and do that. Because when all else fails, the world fails  
30 you, what's this document going to prove to the world, nothing really. But if I  
31 can start a fire on my own, if I can cut up dry fish on my own, if I can live on  
32 my own that's real survival for me. That is a better education. So 4 years ago I  
33 went off to post secondary, I quit, I quit the first year because I realized there  
34 were still things I needed to learn back home. So I went back home and I  
35 learned from my grandma. She passed away last week and she was still  
36 teaching me. She was sewing right up until the day she passed away and she  
37 was working with hides, and she was putting together gloves. My aunty and my

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1 mom didn't know how to put together gloves so she spent that week teaching  
2 them how to put together gloves. That's a real skill I think right there. I would  
3 rather take a course on how to put together gloves then to take a course on  
4 native studies. I would rather hear the stories while I am learning a new skill.

5 Charlie Apple, I know Charlie Apple, and he is a really, really kind Elder. I got  
6 a chance to work with him and he is right [in the video]: I am kind of  
7 embarrassed as a young person, I went to Marion Lake with Louie and he could  
8 work way harder than me and he could do things that I couldn't do. What am I  
9 going to do if this old man can survive and I can barely survive? He kept me  
10 going and he was very encouraging but when Charlie said young people are too  
11 distracted by material things, he is right. When Charlie was young it was all  
12 about survival and it's like that now but we're lost. We don't know where the  
13 caribou are, most young people don't know how to set a net, they don't know  
14 how to do a lot of these things. And I'm not saying I am top, that I am number  
15 one, but I've taken it upon myself to learn from whoever will teach me. So I  
16 have made lots of friends with Elders and I am grateful for that because that's  
17 the kind of knowledge I want to grab before they all disappear. We are losing  
18 our Elders every day. Like last week there were two elderly women that passed  
19 away, my grandma and another lady. That's a lot of knowledge, that's a lot of  
20 grandchildren who don't have somebody to turn to. My grandma's message to  
21 me before she passed away, she gave me raw sinew before we took off to  
22 Edmonton for radiation, and she said put this in your room and keep it good  
23 because one day you are going to need it, one day you are going to teach all  
24 your babies. I was the only grandchild that took the time to learn from her.  
25 Every day of my life, I am so grateful for that.

26 **Joanne Barnaby:** Just one last check with Mary, we would love to hear about the program  
27 you mentioned just after we broke for lunch. It's very relevant.

28 **Mary Louise Black:** I recently took an environmental monitoring course in Fort Smith.  
29 Which was a six week course. It's a really short course that you can get hours,  
30 when you get up to 100 hours you are a certified monitor. I took another  
31 workshop last month where ENR and the Government of Canada sat together  
32 to try and pull youth together from all the different communities so they can  
33 have their own monitors in our own areas that you were speaking about earlier.  
34 So they are working on that and I think they are going to take in 13 youth per  
35 summer from each community - which is a lot - and they will teach you until  
36 you are able to do it up to Terex standards and then you will be eligible  
37 monitors. So that's there, so eventually we'll have more youth being about to



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1 go out and sample our own waters and soils or whatever the community has  
2 concerns about. We can get together and go out there and try to answer some of  
3 these questions for Elders and people who don't understand just reading the  
4 data and all the stuff that comes back.

5 **Joanne Barnaby:** Thank you very much. I just had a vision of our youth coming out with  
6 the Elders and the youth doing the science portion of the program and with the  
7 Elders doing the traditional part of the program. So it will be all Aboriginal  
8 people doing the monitoring in the future and that would be wonderful.  
9 Especially when those youth are so committed to learning traditional  
10 knowledge as well.

11 **Natasha Thorpe:** I was just going to follow up with what you were saying about  
12 monitoring. We wanted to check with the TK Panel here today about whether  
13 the idea of changing the water sampling process that we have been doing up at  
14 Lac de Gras makes sense. Just to give you a little more background, the  
15 program that we just watched has several different parts to it. One is going out  
16 setting nets, collecting the fish, opening them, examining them, and looking at  
17 their color, smell, feel, according to science and TK. There are the fisheries  
18 biologists as well as the TK holders. And then there is tasting the fish to make  
19 sure the fish still tastes right, as it should, as you are used to tasting. Second  
20 part is testing the water and the scientists go out and collect water samples, the  
21 locations that they select are determined in part by science but also by  
22 community members. In August there was a recommendation from participants  
23 that next time we should sample on both sides of the island. You know what  
24 kind of recommendation is really helpful for planning for the future. Once the  
25 water samples are collected they come back to camp and we make tea and  
26 people taste the tea to make sure again it's what they expect good tea to taste  
27 like and the water is okay. This program was suggested by Elders - by your  
28 ancestors - back over 10 years ago and Diavik has generally followed that  
29 model. But this year there were questions on whether it made sense to drink tea  
30 from the water or whether it just made more sense to drink water by itself  
31 without the tea. So we had the discussion yesterday with the Aquatic Effects  
32 Monitoring Program participants and asked what they think and...Nancy is  
33 going to interject here.

34 **Nancy Kadlun:** Even without water or tea testing, which I saw this summer when we  
35 did water sampling from underneath the lake. When the lake bottom comes up,  
36 we saw all kinds of little bugs and that makes me happy because I know the  
37 water is healthy because all those little bugs wouldn't be living if it was

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1 contaminated. They are so tiny and there were lots of kinds I was happy to see  
2 that. They are so tiny they couldn't live with the contamination.

3 **Natasha Thorpe:** So Nancy that's a wonderful example of how you tell whether the water  
4 is good to drink, whether the water is still healthy. The scientists might take  
5 that same water and send it to a laboratory and test it for various contaminants,  
6 but that's an excellent example of water quality based on Inuit  
7 Qaujimagatuqangit (IQ).

8 **Ed Jones:** I know you are going to laugh at this but I would test the water not through  
9 making tea because I will tell you, the brand of tea will change the taste.

10 **Natasha Thorpe:** Ed, you are exactly right and we had this big discussion - do we have  
11 Red Rose, do we have herbal, do we have Tetley. So that you know, that's  
12 exactly the discussion we had out on the tundra. So I want to bring this up to  
13 this group of Elders and experts, when thinking about 3 years from now when  
14 we run the program again and three years after that, and we are wondering  
15 what you think, should we continue to test the water by tasting it in tea or is  
16 there a better way?

17 **Kathy Arden:** I think just tasting it as water would be the best thing. I think it was  
18 Fred Sangris that said this morning sometimes you can make tea with water  
19 and it will leave a scum. So obviously you know that something is wrong with  
20 that water. If you drank it, it might even taste a bit off. So water is water  
21 whether it's grey, clear, got bugs in it, no bugs in it you'll know when you taste  
22 it if it's good water or not. And so I would say do that water test but then after  
23 drink your tea, have a cup of tea and use your Tetley tea bag or green tea but I  
24 think that's the best way to do the water test.

25 **Natasha Thorpe:** What do other people think?

26 **August Enzo:** Tea comes from water. I noticed the lake water and the tap water is  
27 different. I make tea from the tap water. It's not like the lake water you make  
28 tea. It's a different color, it shows on the cup, it's darker. That's how it is right  
29 now. We drink more water, or either tea doesn't matter, coffee because coffee  
30 is always black so we don't know.

31 There is just one thing I would like to say about the movie. It looks good right  
32 now but it will be better later next time you see it. Like us, the way we clean  
33 the fish, how we did it, you are going to hear us speaking when we are cleaning  
34 the fish.

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1 **Natasha Thorpe:** Thank you August. You reminded me to tell the TK Panel that  
2 yesterday we spent the whole morning, stopping and starting the video so that  
3 people could make their recommendations on how to change it. Whether they  
4 wanted it expanded or altered or changed in anyway. That was a good  
5 suggestion of yours August. So I am hearing at least two voices that seem to be  
6 okay with changing the way we do things out there to taste just plain water,  
7 cold water, as well as boiling it to look for the scum or the slime. Does  
8 anybody else have anything, any opinion or thought? We would like your input  
9 whether that's something we should change for next time.

10 **Louie Zoe:** We were talking about the water before in Rae area, Point Lake. We used to  
11 travel there when there was no caribou and we would get water from all the  
12 little streams and ponds, we didn't know if the water wasn't good. Now that we  
13 are using choppers and prospectors and Elder prospectors and mine people they  
14 use the monitoring and all these kinds of equipment there that we know how  
15 the water is. They are doing fish tasting and sampling and we had travel quite a  
16 ways from Rae. Even I used to travel with my dad with the dog team, use the  
17 water, the snow to make tea. The water was good and the snow was good to eat  
18 but nowadays all the chemicals people are using and all the fumes and so today  
19 there's a lot of variable things that goes on there.

20 **Natasha Thorpe:** Thank you for sharing.

21 **Kathy Arden:** There was something mentioned earlier about dust coming from the rock pile  
22 and of course it's going to land in the lake and I don't know if they test the  
23 water. Or if there is a prevalent wind that blows in a certain direction and that  
24 dust lands on that part of the lake, if you took a water sample from that portion  
25 of the lake that receives more dust and then took that water and either let it sit  
26 on the side when you first go there and see if there's any settling of dust on the  
27 bottom of the pail or a clean beaker or something like that, or if you boil it is  
28 there a difference in the color or the clarity of the water. I don't know if anyone  
29 has done any testing like that but I think if my memory serves me that had been  
30 mentioned many years ago about the dust in the water. Not just Diavik mine  
31 but the other mines, too that are surrounded by small creeks and ponds and  
32 other lakes. Probably something like Snap Lake because they are right next to a  
33 waterbody there so that's a suggestion that I am thinking of.

34 **Joanne Barnaby:** Are there suggestions for – again, as we look into the future, and past  
35 the operating phase of Diavik, and once they are closed - are there ideas for  
36 what should be monitored and how that can be done after Diavik is gone? Are

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1 people going to be satisfied with Diavik demonstrating that everything's okay  
2 or are you going to want to go back and check on it after they are gone?

3 **Bertha Catholique:** What I think is that it's got to be monitored even after Diavik is gone.  
4 It's got to be Aboriginal people because it's our land. We don't want anything  
5 to happen, we don't want just anybody to walk away and leave it. So it's got to  
6 be monitored for the next generations, the next generations that are coming. It's  
7 got to be ongoing. Because its water it's the only thing that gives life. If we  
8 don't have any water we're not going to be here. And already parts of the  
9 world, on the other side, the waters all contaminated and this is the last little  
10 cup of water that we have that's pristine and how do we watch that doesn't get  
11 contaminated. And now with the climate changing, it's warmer. So now if we  
12 are going to have to survive I think we are going to be the last Aboriginal  
13 people that would survive and it's really scaring me to think like that. So I  
14 think its Aboriginal people have to make these strong recommendations. I  
15 always remember what Pierre Catholique said, an Elder, when they first made  
16 him chief and then they wanted that park to go ahead. At that time they were  
17 just picking people, the chiefs and leaders. They'd say, we are going to put a  
18 park there and yeah, yeah, yeah...and the parks just went up like that. Then  
19 when it came to Łutsel K'e, he said "No" you guys never planned to have a  
20 park on my land, it was never planned and all this time you took me and my  
21 wife to Ottawa to sign, to get a park going, no he said. I got to wait, us Dene  
22 people we don't just jump into something and take it, we think about it, we  
23 really analyze it first, so it's like monitoring. So for me that monitoring has to  
24 go on forever. That's my strongest recommendation, it's got to go on forever as  
25 long as we're the last Aboriginal people in this world.

26 **Natasha Thorpe:** Thank you Bertha those are all really important points and I appreciate  
27 you emphasizing and raising them.

28 Another really important question that came up yesterday and also at the camp  
29 was once Diavik is closed and into post closure and the water is connected  
30 again and not behind a dike, are people going to want to taste the water then? Is  
31 that still going to be part of the study? Right now we taste it: you collect water  
32 from Lac de Gras and taste it. Are you going to want to continue to do that  
33 after Diavik closes? Are you going to want to continue to taste the fish or  
34 would you rather just science be the storyteller of how the fish are doing in  
35 their tissues and how the water quality is?

36 **Nancy Kadlun:** Yeah, it would be good because I don't think Diavik will be the last  
37 mine. I am pretty sure that somebody's going to jump in right after Diavik

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1 goes. This is not going to be the last mine in that area. There will be some  
2 people jumping right away as soon as they know nobody is there, so we would  
3 like to still go there and monitor the area.

4 **Bobby Algona:** You read my mind Nancy. I have often said it before who is going to  
5 monitor the water and the animals after the mine. I am hearing they will be  
6 monitoring it for a period of time until everybody is satisfied that the water and  
7 the area is clean for all animals to use again after the mine is closed. I think we  
8 need to do a whole lot more and let's think a whole lot more about the things  
9 we need to do. These are some really good recommendations, sessions that we  
10 go to. We do need to monitor an ongoing program for after the mine is closed,  
11 we've already heard that. Until we are satisfied - that is a strong phrase there -  
12 until we are satisfied. I think that speaks for itself, after the mine life is done  
13 for that mine.

14 **Colleen English:** I think those are two really good points. I just have a couple of  
15 questions around that. One that I hear you saying is that to be comfortable with  
16 the fish quality or the water quality, you would still want to be tasting them. So  
17 one of the questions I had was that back in 2009, I remember I was at the camp  
18 with a few people - I don't think that anyone here was there then - but one of  
19 the Elders who was there, before we got there we'd had a couple of meetings  
20 and he was like, "I am not eating this fish. I am not eating it, it's on a lake that  
21 has a mine on it and I am not eating it." And so we had said that was okay, and  
22 that they could still come to the camp, can still hang out and do whatever you  
23 want to do, and we understand it's everybody's choice and you don't have to  
24 eat the fish when you come there. So we got there and we did some fishing and  
25 we pulled the fish in and we started cutting up the fish and then he saw the fish.  
26 And then he tried the fish, because he was comfortable with what he saw, with  
27 the discussions that everybody was having and the talks that they had. And I  
28 thought that was a really great example of some of the things that you talked  
29 about earlier, Bobby, about being a little bit uncomfortable with that lake being  
30 reconnected to the pits. Does this program then become that the number one  
31 thing that we do is we look at the fish. It's a visual inspection that we are doing  
32 before we eat anything. We have the intention of tasting, that option is always  
33 there, and we will always have the science people there, but do we make it a  
34 multistep process where we want to look, we want to see, we want to be  
35 comfortable with what we see, and then we taste if we are comfortable with  
36 what we see. So I think that's one of the questions that I would have in terms of  
37 that comfort level with everyone, once everything is reconnected again.

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1 The other thing that Nancy brought up in a roundabout way that I think is an  
2 important question, too, is right now, for example, we have the Ekati mine that  
3 is very close to Diavik and they're going through permitting for Jay Pipe at the  
4 moment. That is upstream of Lac de Gras, in Lac du Sauvage. It's not far, it's a  
5 few kilometers, so do we start saying that we want to test fish from Lac de  
6 Sauvage? August mentioned expanding the area within Lac de Gras a little bit.  
7 Does the Narrows become a more important site to get fish from every time we  
8 go to that camp? So do we add that to the list of the places we want to go, and  
9 the fish that we want to test and taste? I think those are two really important  
10 questions that you guys touched on in your comments.

11 **Joanne Barnaby:** I just wanted to mention that in fact at this last camp we failed to follow  
12 through and understand Madeline when she would look at the fish and discard  
13 a fish. She would say, 'no, I don't want to work with that one' and what we  
14 didn't do, and should have done, was question her as to why she rejected a fish.  
15 So I think that's something that we definitely need to pay attention to and  
16 address if it happens again.

17 So are people comfortable with identifying areas that you want to sample water  
18 from and to take fish from?

19 **August Enzo:** Yeah I mentioned down there, there is one place there, they call it the  
20 gap [the Narrows], it's a caribou route right across there. We should sample  
21 fish there. We didn't go this year because of the weather. Take samples of the  
22 water because the reason I am saying this is there's another big mine going  
23 way up there, Jay Pipe you call it, and they are going to build a big dam around  
24 it, bigger than the other ones you see. They are going to start work in probably  
25 another 5 years. Before that we have to watch that lake, the gap there; they  
26 should have a station there.

27 **Natasha Thorpe:** August do you mean the narrows between Lac de Sauvage and Lac de  
28 Gras. [nodding yes] Colleen, do you want to speak to the current monitoring?

29 **Colleen English:** We will go over this a bit tomorrow too but this is a good map to try to  
30 explain some of those concerns. [Figure 2 and 3]. We have a water quality site  
31 at the base of the Narrows and then we basically sweep our way across the  
32 lake. This is the outflow that heads to Kugluktuk so there is a sample point  
33 that's at the outflow of Lac de Gras as well. Once you get past there it gets  
34 complicated, as Diavik is not the only one out there. There are other  
35 exploration groups, there's other mines and so you start having a river system  
36 with a lot of different natural and human inputs and it becomes very difficult to

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1 distinguish what might be Diavik's and what might be somebody else's. So  
2 that's the reason for this sample location. And, right now, Ekati actually has  
3 some outflow up here, too, but that last point of control is the main reason for  
4 that sample location. So that's where Diavik can last check, at the outflow from  
5 Lac de Gras, that Lac de Gras water is okay before it goes into the Coppermine  
6 River. And it's not just water that they sample. Nancy, Bobby and Berna you  
7 guys came out with us. There were a few people at the camp this summer who  
8 came water quality sampling with us and saw everything Diavik does when  
9 they go out there. Its taking sediments, its taking the bugs off the bottom of the  
10 lake, it's the water itself, it's the bugs that float in the water, it's the fish, it's a  
11 very extensive program for testing all different kinds of things that could be  
12 happening in the lake.

13 **Natasha Thorpe:** In the future I am wondering where you might consider testing water.  
14 Same places or different places?

15 **Bobby Algona:** Water sampling the very first time, we all said as a group we all agreed  
16 on a place that we wanted to test each and every time we went. And it didn't  
17 happen this time for some of the places that we wanted to sample because of  
18 weather. We couldn't get around to the other side of the island itself. In my  
19 mind I think it would be a good idea to sample every time we go out there. We  
20 had to change our sampling place. We sampled a place a few years ago, we  
21 wanted to keep sampling from that same spot, and in my mind the water is  
22 always moving especially in the big lakes. In my mind it doesn't really matter  
23 where we sample from, the water is moving all around the lake. I think it would  
24 be a good idea if we sample and we agree in this workshop let's do it in that  
25 one spot we didn't do this time. Because the water is always moving and the  
26 pressure itself is, the tides and the moon do a lot to move water.

27 **Colleen English:** I wanted to follow up with everybody and show everybody where the  
28 samples that they took at the camp site were. In 2012, of the two samples they  
29 were taking, one was taken at the discharge line and the second was over in the  
30 bay where Diavik takes in drinking water for the camp. This year we had some  
31 weather issues and so we took them where the fish nets were set.

32 **Joanne Barnaby:** So we have been talking about whether or not there are changes we  
33 want to make to the program and a lot of people have said they are okay with  
34 sampling water, boiling it without making tea or coffee out of it. So I just  
35 wanted to check in.

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1 **August Enzoë:** Testing water we could still boil it, but don't make tea. Let it sit over  
2 night then taste it.

3 **Joanne Barnaby:** Would you want to taste some before its boiled and then taste it after its  
4 boiled?

5 **August Enzoë:** You would still have to taste it before its boiled but also boil it and  
6 check it the next day.

7 **Joanne Barnaby:** How do other people feel about that approach? Good? I think we have a  
8 consensus on doing that next time. Show your hands please.

9 **Phoebe Rabesca:** I don't know, I am new at this and so I am not sure if this was done  
10 before, but have they ever tested the water before its boiled? Do they do  
11 sampling of water before its boiled and after it's boiled? And what's the result  
12 of that?

13 **Natasha Thorpe:** Do you mean to taste or scientific testing?

14 **Phoebe Rabesca:** Scientific testing.

15 **Colleen English:** We don't do science samples on boiled water; it's only just the cold  
16 water out of the lake. There's a way that you can analyze water to look at the  
17 dissolved chemicals in it, which is kind of the same idea as if you were to use  
18 boiled water and get rid of some of the total particulates and stuff in there.  
19 They do that through an extraction method in the lab. Its called 'digesting' and  
20 they put it through a microwave digester and then it removes the floating,  
21 suspended 'total' particles and just gives you the dissolved fraction. So it's  
22 kind of a similar method as boiling to break out those two types of metals that  
23 you would be concerned about, the totals and dissolved. That's the closest  
24 thing they can do to boiling.

25 **Natasha Thorpe:** Boiling water would kill some of the things they were looking for, like  
26 the bugs which Nancy said is an indicator of healthy water.

27 **Phoebe Rabesca:** The chemicals in the water and I'm not sure, I'm not a scientist, my  
28 mind is going, when you take a sample of water and they do testing on it, do  
29 you know what kind of chemicals is in it and all that? Let's say in one spot you  
30 take water and you take two samples: one just regular water to see what kind of  
31 chemicals are in there, and then what if after you boil the water from the same  
32 spot to see before and after, is there any difference, regarding chemicals or  
33 anything?



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1 **Colleen English:** Boiling water does change water. Diavik wouldn't have any samples  
2 from the mine on boiled water, because they don't boil their samples, but they  
3 do a very thorough analysis, in a different way, that get at the same questions,  
4 like what I was talking about before.

5 **Phoebe Rabesca:** So what you are saying is the water is not boiled but it would show  
6 more stuff in that when you look at it.

7 **Colleen English:** Yes, it's just looking at it in a different way.

8 **Natasha Thorpe:** Alright I can see that we are ready for a break. We have fresh coffee  
9 and hot water and snacks there.

10 *Break*

11 **Colleen English:** So we had one last question in relation to this fish and water camp and  
12 it comes down to more logistics. This is about where the camp currently is and  
13 what the future plans for the camp may be. The current location of the camp is  
14 separate from Diavik so it's on the other side of the lake, the south side of Lac  
15 de Gras. It's on a land use permit area, so Diavik has a completely separate  
16 land use permit for the camp. That land use permit is going to expire within the  
17 next year or two, so there needs to be a decision made as to whether Diavik  
18 should re-apply for a land use permit, which would give us another 5 years at  
19 that current site, or we can talk about changing the location of the camp. It's  
20 not wide open. If any changes were made, it would be to scale back, as  
21 opposed to a change a location. Diavik doesn't want to go and make a new foot  
22 print for a camp somewhere, they would rather just move it onto the mine site.  
23 So it would be on East Island as opposed to being out on the land. Those are  
24 basically the two options: do we keep the camp where it's at, even if it's just  
25 for a few more years (up to about 5), or do we move to the mine site? I would  
26 say, this is just my gut instinct as I don't think anyone at Diavik has ever  
27 confirmed this, but that we would have a maximum of 5 years at the current  
28 location and then that would kind of be it, because they would be starting to  
29 close and shrink their overall foot print by that time. They wouldn't want to be  
30 holding on to another land use permit for a place where they would need to go  
31 clean up and remove everything.

32 **Joanne Barnaby:** If the renewal is scheduled for next year, would we have use of the  
33 current camp two more times?

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1 **Colleen English:** No, it would be one more time and then they'd be near the end of the  
2 permit.

3 One of the things that I thought of in terms of the future, in my view, I think  
4 2018 is realistic. I would probably want to keep the camp where it is for the  
5 next time, 2018. After that, the mine site is going to get a lot quieter so the  
6 mine won't be as busy. You aren't going to have all of the people that are there  
7 now and all of the equipment; it's going to be a lot quieter in 2021 as they  
8 approach closure. I think that there's been a lot of discussion we have had in  
9 this Panel around healing the land at the mine site and I think that there could  
10 be some pretty cool opportunities to do that if we used the mine site as a base  
11 and maybe had a tent, a gathering tent set up somewhere sort of onsite, but in a  
12 nice quiet area where there is some natural tundra that's a little away from the  
13 buildings. So you can still go out and you can still fish and you can still go take  
14 water samples and stay at the mine and then use this tent as the meeting place,  
15 gathering place, where you would cut your fish, where you would do all of that.  
16 But you can also be on the land at the mine site to get a better feel for how  
17 things are changing, because they will be changing a lot at that point in time.  
18 And we have had a lot of feedback saying that people at the camp also want to  
19 see the mine site. The camp can change, the camp can evolve. It can move  
20 location, but it's really a choice between where it is now or being based on site.

21 **Joanne Barnaby:** Thoughts on the location and whether we should recommend staying at  
22 the current camp for the next time or moving before then?

23 **Ed Jones:** Colleen mentioned there are quiet areas on that island, I don't believe that. First  
24 of all why move? That's my question.

25 **Joanne Barnaby:** As Colleen explained, they won't have a land use permit for where the  
26 camp is currently. After a certain amount of time, it will expire. If they don't  
27 have a land use permit, yes they have to move. Yes they can renew but, as she  
28 explained, if they did renew next year, it gives them 5 more years. But after  
29 that Colleen doesn't think that Diavik will be interested in renewing again  
30 because they will be focused on closure and taking things away. Are you  
31 suggesting that you want them to renew again after the next renewal, so for  
32 another 10 years, they would have that camp? If that's the case are you also  
33 asking them to leave all of the buildings and tent frames and such? If they don't  
34 have a land use permit that stuff has to be moved. Any other thoughts on this.

35 **Bobby Algona:** The land use permit for that camp expires and if you do get to where  
36 you have to move equipment, these tents and stoves and stuff that you have

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1                   there, I think if we could. Each group here would like to say a few things  
2                   maybe. I myself as a hunter and trapper I have often come to Lac de Gras and  
3                   if there's a way that the communities can say we would like to keep those tent  
4                   frames there at least. They aren't going to go rotten, they can leave those tent  
5                   frames there, they are still fairly new and can be use by the different  
6                   communities for another 20 years from now. I think it would be a good  
7                   recommendation to Diavik.

8                   **Joanne Barnaby:**     So the option of selling the tents to the communities at say \$1 each.  
9                   What would that mean in terms of land use permits because community people  
10                  don't need land use permits to set up on the land camps.

11                  **Colleen English:**     Yeah and I think one of the challenges is that Diavik does need a permit  
12                  and to get out of the land use permit we need to clean it up. So it would either  
13                  have to be something that we explore outside of the box with the government  
14                  where it's a sign off, the communities would rather keep it here as oppose to it  
15                  being cleaned up and then someone coming back in to re-establish in the same  
16                  area. So that would have to be flagged pretty early on for a discussion with  
17                  them. The other option is to dismantle the camp where it is and give all of those  
18                  materials to everybody and you can set up wherever you want after that. Then  
19                  Diavik gets that close off piece with the land use permit and liability, and you  
20                  guys get the gear and equipment and can set up a camp wherever you want to  
21                  be.

22                  **Bobby Algona:**       As an elder and as a hunter trapper all my life, I think I would like to  
23                  use the camp in the future. Maybe if my health were to come back I would like  
24                  to go up there again and I think that's something. If you are going to lose that  
25                  land use permit anyway I think handing it off to a community or maybe an  
26                  organization or maybe to all the communities around the table we could use  
27                  those in the future. I have no qualms about leaving such good lumber there. I  
28                  could always use that as camp, instead of having to move it away.

29                  **Colleen English:**     Yeah I know for the government it always comes back to how long is  
30                  that going to sit there, are people just going to leave it and forget about it and  
31                  walk away. That's the big concern and if it's got the Diavik name on it, you  
32                  can bet that they are concerned about it may come back to them later.  
33                  Something would need to be signed off somehow.

34                  **Natasha Thorpe:**     Do you know how the original camp location was selected?

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### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Colleen English:** It was done back in 2002 with support of the communities but I don't  
2 know the exact process. I know everybody sat down with a map and picked a  
3 spot and it had to be close enough that Diavik could support it but quiet enough  
4 to have some space away from the mine and have a camp feel.

5 **Natasha Thorpe:** I think that's important to know that there was community input in the  
6 beginning in selecting the location.

7 So for 2018 what would the TK Panel like to recommend? Staying where the  
8 camp is, or move to the island.

9 **Bertha Catholique:** I don't want to move away because there are a lot of cloud berries there.

10 **Natasha Thorpe:** We were lucky this year to see a bear and a wolf. Lots of ground  
11 squirrels. Is there agreement to keep it where it is or do we want to think about  
12 moving?

13 Keep it where it is: Yes, majority.

14 We are going to switch channels here to talk about the recommendations that  
15 you as the Panel delivered to Diavik at our last session when we were at camp.

16 *Presentation – DDMI Response to Session 7 Recommendations (Appendix G)*

17 **Colleen English:** Very early on we got a lot of feedback that you wanted to hear back on  
18 your recommendations. So that is what this is. One of the commitments that we  
19 made very early on was to respond to every recommendation that the Panel  
20 brings forward to Diavik. Usually, at the end of every session, you guys will  
21 present to Diavik, and Diavik will give an initial response, a best guess of their  
22 initial take on things. But then they also take it away and have some time to  
23 think about it and figure out what works and what doesn't in relation to the  
24 closure plan, or whatever topic we are discussing. Then, someone presents the  
25 official responses from the last session at the beginning of the next session. So  
26 that's what we want to do today. Last time we talked about plants and re-  
27 vegetation, re-planting at the mine site and trying to rejuvenate the land after  
28 the mine is done. So today I am going to walk through some of those  
29 recommendations and give you the response from Diavik. If there are any  
30 questions I can't answer we will park those and make sure that Gord answers  
31 those when he comes back tomorrow.

32 **1. Those [recommendations] that are supported (16 recommendations)**

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Kathy Arden:** Before Diavik started mining on the island did they have a group of  
2 environmentalists that went on there and took pictures and samples of the  
3 vegetation? And then do sort of a mapping of it? Because on there you said  
4 studying the vegetation on the north and east side of the island. And I am sure  
5 the vegetation in those areas would run throughout the island. But if I  
6 remember correctly, many years ago, like in 1998 when all the mines were  
7 starting up, they had asked the mines to start taking samples of the vegetation  
8 right away. So they have done that?

9 **Colleen English:** Yes, and there are two sides to that question, from a TK perspective and from a  
10 science perspective. From a science perspective we've got all that. We have the  
11 vegetation based maps that show us exactly what types of vegetation are present all  
12 around the area. And Diavik has done studies since day 1 about what types of  
13 vegetation have been seen, is it growing faster, are species changing? Those are all  
14 questions from the science perspective that have been looked at. And also dust on  
15 vegetation, particularly lichen in relation to caribou. That's been another study that has  
16 been done in relation to plants. On the TK side of things, Natasha and Joanne probably  
17 want to speak to that from your literature review. I don't know which one of you wants  
18 to speak.

19 **Joanne Barnaby:** Let me just say that what struck me about that work was how well our TK  
20 holders in our communities knew that area. You know the full variety of plants that  
21 they identified, in some cases they identified how they were used for food or medicine  
22 or for fire. And what they knew was critical vegetation for animals and in particular  
23 the caribou and what they knew about how long it takes that vegetation to grow once  
24 it's disturbed. So it was very rich information and its there, it's available to us.

25 **Kathy Arden:** With that in mind, you have a length of time that this vegetation would take to come  
26 back on that mine site. So it might be 10 years before the lichen would come back.  
27 Because I was just thinking that we (the TK Panel) and Diavik are going to make the  
28 paths back for the caribou to roam through but the mine is going to be done and gone  
29 but not much of the vegetation is going to be there yet to eat. So I guess what you are  
30 thinking of is that they will probably pass through and go to areas where they can feed  
31 because I don't know how long it would take them to go through the site.

32 **Colleen English:** Yeah it doesn't take any time, it's a pretty small site. But one of the things that  
33 a couple people raised that I found really interesting, Joanne and I were talking about it  
34 after our site visit last time, is we have vegetation plots, a research plot that was 10  
35 years old when we were there last. It has big, tall grasses on it. But its grasses, so a lot  
36 of people were like, 'well that's different, that doesn't look like the tundra that is all  
37 around'. It was really important for people to see that, because it's a staged approach.

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### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 Even when you plant and you encourage growth for different species, the first type of  
2 plant that can take to anywhere is either fireweed, as August observed, or grasses.  
3 Then those grasses die and you start getting some nutrients in the soil and that's when  
4 you start to see your willows and your berries and those types of things coming up. So  
5 those will be even longer before you are going to see that type of change to similar to a  
6 truly natural landscape. So you may see swaying grasses on the tundra for a little bit  
7 before you are going to start to see what looks natural to your eyes, for those who are  
8 used to being on that land.

9 **Nancy Kadlun:** I was wondering what are you going to do with all those huge buildings?

10 **Colleen English:** The buildings will come down. What happens to them will depend on the state  
11 of the building, if it's in good condition. We have done some studies but will probably  
12 have to re-evaluate this as we get closer to closure in terms of which ones have value  
13 to keep using or sell or donate. Those that don't will be buried in the on-site landfill.

#### 14 **2. Those that Diavik wants to modify (5 recommendations)**

15 **Joanne Barnaby:** One of the things that we found in the literature review was you could really  
16 see the specialized knowledge of the women, and it was quite different from the  
17 knowledge that men had. So that's why we wanted the specific women's session, so  
18 that we didn't miss the deeper knowledge that women have about plants. And I haven't  
19 given up pushing for that one for the vegetation, because we don't want to miss out on  
20 their knowledge.

21 **Joanne Barnaby:** So you are saying the Panel could meet three times a year?

22 **Colleen English:** It could be 1, 2, 3 times a year, but based on the information that can be shared  
23 and what is relevant at the time. Especially when a large part of the Panel's focus is on  
24 closure and there's aspects to the closure plan that Diavik doesn't even have all the  
25 right information yet. They are still doing research in order to know what that closure  
26 plan piece is going to look like. So to have a discussion before they know that is sort of  
27 futile. They can't share enough information with you so it puts the Panel in a tough  
28 position to be able to make useful recommendations back to them as well. So we just  
29 want to make sure that it's relevant.

30 **Natasha Thorpe:** So I just want to check in with the TK Panel to summarize that the slide that  
31 Colleen showed you before, these are all the recommendations that came from you last  
32 time that have been supported. Then there are these ones that they would like to  
33 modify. They are not saying no but they would like something slightly different. So

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1 based on what Colleen has just shared, I want to check in with the Panel to see if there  
2 is a response or comment on these 4 that they are wanting to revise.

3 **Kathy Arden:** Earlier when we were talking about the PKC pit, I haven't seen it but I have a picture  
4 in my head that it's something very eerie and scary and green and stuff like that. And  
5 like you were showing us on the map that sort of natural barrier between the rock pile  
6 and the slope that goes down into PKC. What is preventing the caribou, if they decided  
7 to migrate lower and come across, is there something blocking it all the way around  
8 that PKC pit or are you just more concerned that they are going to actually cross over  
9 this nice little walk way we are going to make them. I mean caribou change their mind  
10 and have gone different directions over the years for various reasons of course, but  
11 what about the bottom end.

12 **Colleen English:** Yes that's a good question. There is a very big dam, very tall, that goes all the  
13 way around the PKC.

14 **Kathy Arden:** So now I can see why your concerned and your concentration is on that rock pile and  
15 the barrier there, because it's not as high.

16 **Colleen English:** Right so it's easier for them to get down.

17 **Natasha Thorpe:** I want to add that it's really tough to come in to the TK Panel because we have  
18 been going a few years and you also weren't at the last session. Not just you, but we  
19 have some members that are not here all the time and we are so excited that there are  
20 new members, especially more female representation, which is what you  
21 recommended as a panel before. If anybody is interested in reviewing, taking home  
22 with them previous Panel reports, these recommendations, I think it will all make a  
23 little bit more sense and I am thinking Phoebe for you, too. Because it's really tough to  
24 be parachuted into a process so thank you all.

25 The other thing I wanted to mention is that Colleen is presenting and it's a lot of words  
26 and thank you for being patient. This is just what you came up with last time so just to  
27 give you an idea, this is how hard you are working and how many recommendations  
28 came out. There were 22 or 23 recommendations from last time and we will probably  
29 add the same number around that on Friday after we figure out all the comments you  
30 have made today, tomorrow. So this is the 8<sup>th</sup> session of the TK Panel so we have 8  
31 sessions times 10, 20, 30 recommendations and they are all in a huge table. It shows  
32 here is the recommendation, here is how Diavik is responding and here's the action.  
33 This was something that I got involved in when I started working for this TK Panel. I  
34 advised Diavik, I said people need to know exactly where their recommendations are  
35 leading to action. You make these recommendations and then sometimes in other

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1 situations you don't hear back and it's frustrating. So this is an example of you hearing  
2 back how Diavik is responding to your recommendations. You have made over 100  
3 recommendations at this point.

4 This is you hearing back from Diavik about your recommendations.

#### 5 **3. Those that are unsupported (2 recommendations)**

6 **Ed Jones:** I just want to remind you that human waste is used as a fertilizer in China and they  
7 have been using it for years and I believe that is what keeps them slim.

8 **Nancy Kadlun:** I don't think that we will need seeds because it will do it itself.

9 **Colleen English:** There has been a lot of discussion around people thinking that the land will do  
10 it itself. August was saying that he really noticed when we went through the mine site  
11 to camp this summer. He noticed that there was fireweed everywhere, growing on the  
12 sides of the rock piles, growing beside the roads. Mary Rose Sundburg said it best, that  
13 nature will heal itself but it is a big scar that has been put on to the land. So for nature  
14 to heal itself, it would take a lot more effort than it normally would. So if we can help  
15 and we can try to encourage that growth then that may be a good thing in this case.

16 **Joanne Barnaby:** I just want to make a suggestion that we visit the treated sewage area next time  
17 so that maybe you all know better what it is and maybe you will feel better about it.  
18 You know our people used nature in the past always without even treating sewer and a  
19 lot of times that sewer that we produced, human waste that we produced, went into the  
20 water ways and nature healed it and kept our waters clean and we do have experience  
21 with that.

22 **Bobby Algona:** I would like to remind you again, I have said this one time before, when we  
23 want to reclaim and replenish the mine site and get the perspective on how to do that  
24 we should go and see old camp sites nearby. There was a lot of human activity in those  
25 camp sites and they haven't been used in many years because people long ago found  
26 one spot that they could use which had a lot of human activity because of a lot of  
27 animals around and plant life and the animals around the area. And just a couple of  
28 years ago Ekati went up to my camp on their caribou surveys and they landed on my  
29 campsite and they told me and showed me pictures of my camp and all the grass and  
30 everything is all over my camp now. I think if we are going to reclaim and replenish I  
31 think we need to go visit my camp to get a perspective on how we can reclaim the  
32 mine site. As a TK holder I see this all the time. I find old camp sites on my travels. I  
33 don't know who's ones they are and if it's my people, the Dene people and it looks



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1           like the explorers from the past. And those grasses and shrubs have really grown fast  
2           in those areas.

3 **Natasha Thorpe:** I have added that as a recommendation. I don't want to put you on the spot  
4 Lucas but we do have someone around the table with quite a bit of experience with  
5 vegetation. Lucas has worked on a mine site before in a vegetation program. Are there  
6 any words of wisdom you have for us?

7 **Lucas Enzo:** I did work at Ekati Diamond Mine replenishing and seeding, and testing the Canadian  
8 geese, that go up there and feed on the grass and test if it's okay to eat. We test the  
9 soil. It does have chemicals in there but it's not too much, so it's not harmful. But it's  
10 actually growing.

11 **Natasha Thorpe:** So do you think moving these tundra mats might work?

12 **Lucas Enzo:** You don't need the tundra mats you just need to give it time and it does work.

13 **Natasha Thorpe:** Thank you Lucas. Any other questions and comments?

14 **Louie Zoe:** You're talking about things that will be important that the country rock that is up really  
15 high. I don't think the animals can climb up high, they can lower it down so animals  
16 can go up other rocks and further down this side. They are going to be making another  
17 rock pile in the process of making the new dike. We once told Diavik the rocks piled  
18 up like that is too high for the animal.

19 **Natasha Thorpe:** So we will put that down again as a concern. Can I put that down as something  
20 we can talk about with Gord when he comes back? So thank you very much. I know  
21 that everybody is tired, so let's call it a day. If we can meet here, we would like to get  
22 started about 8:30 a.m., if that works for you guys? And tomorrow we've got Diavik  
23 going through a presentation about monitoring water quality right on East Island. So  
24 before you go home or to the hotel we are going to be talking tomorrow about  
25 monitoring water quality on site, and putting together some recommendations. And in  
26 the afternoon, that's when we will be hearing from both Diavik and DFO and focusing  
27 on shorelines and fish habitat, and making recommendations.

28 **Louie Zoe:** I had mentioned in the past that the sewage is being treated and with the PKC are the  
29 putting that back into the lake? This is an additional question.

30 **Natasha Thorpe:** He was asking earlier and suggesting that the height of the Rock Pile is too  
31 high for animals.

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1 **Gord Macdonald:** I can't answer the question if it's too high for caribou or not - you would  
2 probably know a lot more about that than me. So it is as high as it is. It's not going to  
3 be any bigger, but it also is not going to be any smaller. It will be capped. So  
4 when A21 rock comes out, that rock is going to go somewhere in here [southwest side  
5 of Island, on Figure 1]. I haven't decided exactly how or where yet, and it is something  
6 that I think we talked about at the last Panel session. Do we make it large and flat or  
7 smaller and higher? Those are the options that we have, so those are decisions you can  
8 help us with. Because once we put it out there, whichever way we build it is the way it  
9 will be forever. Other than what we will use to cover the north country rock pile, all  
10 the rock [from A21] is going down here.

11 I think you asked a question about whether the sewage is treated.

12 **Colleen English:** Does the PKC go to the lake and is the sewage treated?

13 **Gord Macdonald:** The liquid sewage is treated and it goes into here [PKC], and if there is too  
14 much water in here [PKC] we send it to the north inlet to be treated before it goes back  
15 into the lake.

16 **Colleen English:** That's the sewage water, then there are the solids too.

17 **Gord Macdonald:** Then the solids come out and right now a lot of them are being placed up on  
18 this till pile. We saw that when we were doing the re-vegetation session. We've got  
19 options, but we would like to be able to use it as part of the re-vegetation process. I  
20 know there were some concerns from this group about using that for re-vegetation.  
21 Any other questions?

22 **Joanne Barnaby:** I think everybody is tired, we have absorbed a lot today. If you can think about  
23 what Diavik said and if you have any other comments bring them in the morning.

24 **Louie Zoe:** Closing prayer

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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

1 **Thursday December 3<sup>rd</sup>, 2015**

2 **Nancy Kadlun:** Opening prayer

3 **Joanne Barnaby:** So when we finished off yesterday we were focused on Diavik's response  
4 to your recommendations from the last session on plants and re-vegetation.  
5 Everyone was tired and we agreed to come back to it this morning and give you a  
6 chance to comment on it, especially if you had any questions to Diavik about any  
7 of the recommendations that they don't support. So just to remind you, I believe  
8 there are 2. This first one was in relation to the use of tundra mats to re-vegetate  
9 certain areas. Colleen explained that the timing was really challenging to do this  
10 and they don't see that it can be done. They have tried and it didn't work.

11 The second one was the use of treated human sewage as fertilizer. If you  
12 remember, some Panel members were uncomfortable with using human waste as  
13 fertilizer and Diavik feels that it's a very effective fertilizer and it's there, its  
14 treated and its safe for use.

15 In terms of recommendations they would modify, there were 4. The one  
16 recommendation related to using the small crushed rock similar to what's on the  
17 air strip. Diavik explained that a very specific crusher was brought in specifically  
18 to construct the air strip to produce that really fine rock and it would not be  
19 feasible to bring that back. They feel that it's not necessary, that the test slope that  
20 we saw seemed to be satisfactory to the Panel and it would be at that level of  
21 crush.

22 The idea of creating a barrier between the rock pile and the PKC slime area,  
23 there's still a need to explore options there on how to do that.

24 And the idea of having a special women's session on vegetation, their preference  
25 is to incorporate women into all the meetings and not have a special session.

26 Also in terms of meetings per year they are basically saying they would rather  
27 approach it on an as needed basis so that's if there's something that needs to be  
28 addressed in terms of planning for closure that needs some direction they would  
29 rather approach it that way.

30 Any comments on the recommendations that they suggest either modifying or  
31 rejecting?

32 **Janelle Nitsiza:** Good morning. The third modification incorporating women in the  
33 vegetation. I think it's actually more important if we do have our own women's  
34 sessions. I mean I don't have to be incorporated but I would love the opportunity

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1 because we could use that time for Elderly women to teach about traditional  
2 vegetation, like how to collect moss and what's good for this and what's good for  
3 that. I know my grandma taught me lots just from around our area and it would be  
4 interesting to see what's growing in the Lac de Gras area. I know a long time ago  
5 when they had meetings the men went, it was mostly men who were incorporated  
6 and they got to see the caribou stuff and all the things that affect the caribou. But  
7 women use the land and we need to see it ourselves and we need to learn because  
8 not many Elderly women are around now, so I would be very grateful just to see  
9 what the vegetation is like there and just to see what we can do to help, from both  
10 sides, the scientific side and the traditional side.

11 **Joanne Barnaby:** Any other comments?

12 **Bobby Algona:** When we look at the fine crush rock I agree that we don't really need that  
13 really fine crushed rock. When we go to the mine you see lots of crushed rock all  
14 over the camp site itself, you see them under the culverts or the pipeline, the water  
15 line. You see growth underneath the buildings as well and near the water pipelines  
16 especially. There was this one person that we were working with, he was  
17 wondering, we did not put any additives to any crush rock. I told him when you  
18 crush rock there are ingredients in that rock sometimes, it's not always acidic or  
19 anything that can really deter plant life. Sometimes you see that on the water  
20 pipelines. There are natural ingredients in that crushed rock as well. It all comes  
21 from the rock, you see all the plant life on the tundra, that all comes from the  
22 rock.

23 **Joanne Barnaby:** Any questions or comments about any of the responses from Diavik?

24 **Natasha Thorpe:** I am just going to speak to the Women's session on vegetation. During the  
25 Aquatic Effects Monitoring Traditional Knowledge program when we are out at  
26 the camp there was some work that we did with the vegetation, particularly with  
27 the women. But we also had some of the men comment that they would rather  
28 more fish related lessons be taught at the camp than vegetation related. So I think  
29 the idea with this if I am remembering is that it was sort of something that would  
30 happen once, not on a regular basis, but that it would capture the specific  
31 knowledge of women.

32 **Ed Jones:** I just want to say that I don't know why they keep harping on this re-vegetation  
33 thing because I have said many times that you can allow nature to take its course,  
34 they don't need to do that. You take the risk of introducing something that  
35 shouldn't be there. You can allow nature to take its course and there is no danger  
36 in that. If you are introducing new plants they could be harmful. I think it's a

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1 waste of time talking about this, should we or should we not re-vegetate, but it  
2 doesn't seem to get through that you can allow nature to take its course and there  
3 is no danger in that.

4 **Joanne Barnaby:** Just to be clear Ed, everyone is in agreement that no new plants will be  
5 introduced. It would only be local plants.

6 **Kathy Arden:** I think I had asked yesterday and I fail to remember what the answer was, has  
7 someone from Diavik already done a collection of seeds in that area or are they  
8 waiting until closure?

9 **Colleen English:** They do have the University of Alberta that is on site and doing re-  
10 vegetation research. As part of that work they are also collecting seeds and  
11 shrubs. Diavik has also tried to source northern seed supplies, one example is  
12 Aurora Resource Institute. Two summers ago they did a NWT wide seed  
13 collection program and we've sourced seed from them. There's also a supplier in  
14 the Yukon that have NWT species, so we also source from them. Between those  
15 three that's where we get all of our seed from for the programs that we are doing.

16 **Joanne Barnaby:** No other questions or comments?

17 **Bobby Algona:** That fourth one that the TK Panel meet two times per year? Why was that  
18 not accepted? Is it for once per year or three times per year?

19 **Gord Macdonald:** Its not that it wasn't accepted. We said we shouldn't fix the number of  
20 sessions, it should be based on what is needed to be done.

21 **Joanne Barnaby:** Okay, last chance for comments or questions.

22 **Kathy Arden:** Forgive me for harping on the seed thing but going to the women's session on  
23 vegetation and the identity of the plants in the Diavik mine site area. It's been  
24 commented that women have used plants for medicine to treat their families and  
25 even consume so I think that a women's session on vegetation using the identity  
26 of plants in that area would good because then they, those people that are  
27 knowledgeable in the consumption or use of those plants for medicine, would be  
28 good. Then we could ensure that those plants manage to re-grow in that area so  
29 that in the future our youth who will learn the use of these plants would be able to  
30 go there and use them and consume them and know what they are for. So perhaps  
31 a women's session with lady Elders that know of these plants would be a good  
32 thing because then it would be ensured that these plants have come back in that  
33 area. I know Eddie has mentioned that we are always talking about re-vegetation

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1 and let nature takes its course and I am sure it will, but identifying those plants  
2 and making sure they come back would be good.

3 **Joanne Barnaby:** Any other comments or questions?

4 **Louie Zoe:** Yesterday talking about plants and vegetation is a very important question and the  
5 plan and the gravel that we talked about. I am concerned about the height of the  
6 waste rock pile and then the big boulders and think maybe we would try to reduce  
7 the size of it and then eventually, but it's hard to know how long, for the  
8 vegetation to come back. It's going to take years for sure, none the less if you had  
9 some fine dirt scattered all over on top maybe that way the wind would take over  
10 and nature would take its course.

11 **Dora Migwi:** Taking the vegetation back and the re-growth is very important because it's  
12 seasonal and every spring I guess when all the plants that come back to life and all  
13 the shrubs are all out there. I agree that we should just leave it up to nature to take  
14 its course. The animals really depending on it and we don't have to put new  
15 species of plants in there that maybe the animals that are using the land might  
16 change their diet. It will change the whole landscape. It looks grey brown because  
17 everything is dried up and leave it up to nature to run its course.

18 **Joanne Barnaby:** Any other questions or comments?

19 **August Enzo:** Good morning this program we are working on I have been working on  
20 this for 3 years now. We work on it for three years what should be done and what  
21 should not be done. And I was looking at it and it looks pretty good. The rock pile  
22 we want them to make it level so the caribou could come back and be able to go  
23 on top of it. And for other things we did a lot of talk about what should be done  
24 but now the mine is going to be going another 5 or 6 years again so what we are  
25 doing now is for the future of the mine. Mother Nature will do her part with the  
26 flowers and stuff.

27 Short story. Rush River way back in the 1920's there was a lot of people living  
28 there, a school everything, church, Hudson Bay. 1960 it closed and everyone  
29 moved out. And I was there after 10 years and all the houses were gone and the  
30 land was really growing again. I used to travel around there and it was really  
31 growing back, everything is growing even where the houses were.

32 What's going on with the Jello, or slimes?

33 **Gord Macdonald:** We call it slimes but I think we should change it to jello, it would be a  
34 good idea. Since the last time we talked, we said we would get back to you and

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1 we will do that tomorrow about them. Pails of the stuff went to the University to  
2 have toxicity testing done on it. Nothing has changed in terms of what we are  
3 going to do with it.

4 **Joanne Barnaby:** Ed you wanted to say something.

5 **Ed Jones:** I just want to mention that we do a lot of talking about what the mines are doing,  
6 environmental damage, but you know this is not the time for me to say it but I am  
7 going to. The biggest threat to our environment is the Tar Sands at Fort  
8 MacMurray. I don't hear our government representatives talking about it or even  
9 the average Yellowknifer. They tend to ignore that, why I don't really understand.  
10 Fort Chipewyan and Fort Mackay have shut their mouths, they don't criticize the  
11 Tar Sands anymore, I suspect because they have been paid under the table and I  
12 am wondering if our government is also being paid under the table to keep their  
13 mouth shut. I know this is not the time or place, but I just want to remind people  
14 the biggest threat is not the diamond mines, but the tar sands.

15 **Joanne Barnaby:** Thank you Ed. No more questions then we should move on. I believe  
16 Gord has a presentation.

17 *Presentation - Post-Closure Water Management and Water Quality Monitoring (Appendix H)*

18 Questions from Diavik

- 19 1. What areas would you want to sample and why? (eg. Migration routes,  
20 caribou crossings, ponds, etc.)
- 21 2. Would you want to do any type of TK monitoring of water quality on the  
22 island?
- 23 3. Are there features that would help clean/heal water draining from the land?

24 **Fred Sangris:** I know when they operate the mines the rocks are stockpiles and the most harmful  
25 rocks are normally stockpiled somewhere else. Can you tell us where the harmful  
26 country rocks are? And what's in the surrounding area?

27 **Gord Macdonald:** The more harmful type rocks, they are what we call type 3 rocks, and they  
28 are located in the middle, the core, of the North Country Rock Pile. So we put it in  
29 the middle of the North Country Rock Pile and it is sitting over top of the old  
30 quarry that was initially dug to build the dikes. So it's in the heart of this pile and  
31 the plan we have for that is to put a cap on the top of it that is made up of a layer  
32 of till, some gravel and a layer of rock. The idea is that it's going to make a cap  
33 over top of it to keep the core of the pile frozen so that, as much as possible, we

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1 can keep that type 3 rock away from any snow melt or rain fall. So the design is to  
2 have everything run off of it, not in to it.

3 **Mike Francis:** The big pile of waste rock. Once the closure of the mine are they going to  
4 put it somewhere else? Or put in the open pit? I am concerned for the waste rock  
5 once the closure of the mine and that water.

6 **Gord Macdonald:** I think that there was a question about whether the rock is going to stay  
7 here and the answer is it is going to stay here. It's not going anywhere. We are  
8 using the good rock for on-going construction, type 1 rock. The Type 3 rock, the  
9 bad rock, is in the place it is intended to be.

10 **Bobby Algona:** As you I know we are in the heart of global warming and everything is  
11 melting all around us and hunters are finding these sink holes out on the tundra  
12 and especially around these esker areas and where there's a lot of permafrost, its  
13 melting. When you talk about that harmful rock and you want to put a cap on it  
14 and you think it's going to stay frozen. I am thinking how is that going to happen  
15 when everything is melting. It's eventually going to melt if global warming  
16 doesn't stop what it's doing now. It's not going to stay frozen with all the global  
17 warming going on.

18 **Gord Macdonald:** That's a very good question Bobby and that is exactly why we are doing  
19 this the way we are.

20 This is a picture of the rock pile and all of this would be frozen, but every year in  
21 the summer and you get a depth of thaw, about 1.5 meters of annual thaw in the  
22 ground. The thaw back on the rock pile is 15-20 meters every year. Global  
23 warming would likely increase that, if we left it the way it is today.

24 **Natasha Thorpe:** The math geniuses would play around with a few different cases, like if  
25 climate change went really crazy. What if it was small, what if it was somewhere  
26 in the middle, where would that thaw go?

27 **Gord Macdonald:** There are a range of scenarios looking at the paper these days about  
28 what's going on in Paris. There's a whole range of views that people have about  
29 what the world is but just like in any other engineering communities, the  
30 regulatory communities come up with reasonable scenarios and they ask every  
31 development, particularly developments in the North, to evaluate your designs  
32 against those global warming scenarios. So that is exactly what we have done is to  
33 evaluate all of our engineering, even back when we were doing the mine design,  
34 all of the engineering was done with global warming scenarios. The scenarios  
35 have changed plus or minus but when the average temperature at site is still like -



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1 11C, you'd have to go 11 degrees of average temperature before you'd end up in a  
2 thawed environment. But regardless, global warming is not working in our favor  
3 for the mine site. So we want to make the rock pile act like the ground with  
4 regards to the annual thaw back. And the difference between what happens on the  
5 ground and what happens in the pile is that this [pile] is all big rocks with big air  
6 spaces in between, so the thaw can move faster down the column. What happens  
7 in here [ground] is its more compacted, it's more solid, so the annual thaw back is  
8 less. So the way we are doing this is to add 1 meter of the till [lake bottom  
9 material] out of the new pit and put it on to the rock pile. Then we top that with a  
10 3 meter thick layer of rock, which will protect the till from thawing. So even with  
11 the annual thaw back, it [type 3 rock] still stays in the frozen zone.

12 This isn't something that we are going to do in 2023 or 2025. This is something  
13 that we actually have to start next year; we have to start re-sloping this pile  
14 because 2018 is when we will start mining A21 and we want to bring that material  
15 straight out of A21 and put it straight onto this pile so that we can start this  
16 process of developing this cap.

17 And I say all that because, in order to do this, next year we come back to the  
18 Panel with what we have been working on for the shape and the slope and caribou  
19 access on the North Country Rock Pile. It is because we have to make these  
20 decisions about what that final slope is going to look like next year, so that we can  
21 have it set and we can start building on top of it. Because what we don't want to  
22 do is build this cap on top of it and then, you know, have the Panel come back and  
23 say, you know, we would really like a caribou ramp over here. That gets a lot  
24 harder then.

25 **Natasha Thorpe:** Are there any more questions for Gord?

26 **Fred Sangris:** Here in Yellowknife, about the last 30 years, over the last many years we don't  
27 get a lot of rain. Have you been monitoring the rain season? Has the rainy season  
28 been diminishing or have you been getting more rain?

29 **Gord Macdonald:** It seems to come in more storms. So we have been getting the same  
30 amount, more or less, every year. We have had a couple of dry years but the  
31 storms seem to be bigger. The global warming prediction for the North is more  
32 rain, which we haven't seen yet, but that's what all our scenarios are designed for.

33 **Fred Sangris:** Is the rain going to help or is it going to be a problem?

34 **Gord Macdonald:** It's harder not so much for this, but for the PKC where it's a pond and so  
35 we have to design to those higher volumes. We can design to it properly but the

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1 bigger problem is if we didn't see rain. Then those slimes on the bottom end up  
2 getting exposed. Dry would be good for the North Country Rock Pile, not so good  
3 for the PKC.

4 **Natasha Thorpe:** Thank you Gord I think that gives us a good start to our discussions. We  
5 have three questions to think about.

- 6 1. What areas would you want to sample and why? (eg. Migration routes,  
7 caribou crossings, ponds, etc.)
- 8 2. Would you want to do any type of TK monitoring of WQ on the island?
- 9 3. Are there features that would help clean/heal water draining from the land?

10 **Louie Zoe:** Definitely I think the mining company wanted to work with the Elders and now  
11 that we have that component in there I would like to help the best possible way.  
12 The Elders are concerned mostly about the land, the wildlife. Another concern is  
13 the way the company is looking at putting the waste rock back in the pit. As far as  
14 the filling it back up with water, I think the open pit will be cleaned out with the  
15 water any given day the water would be so deep that the fish might not want to  
16 use it. There's the dike itself at the water front do you see any vegetation that  
17 might be growing back in that area and if we could make the landscape more  
18 pleasant.

19 **Fred Sangris:** I feel the same was as the Elder from Gameti. We have learned from the past the  
20 mining companies just walked away so we want to see the best closure possible.

21 **Natasha Thorpe:** You are giving early guidance to Diavik so they can meaningfully and  
22 respectfully bring in TK into how they are planning closure. And when I hear that  
23 closure is planned for 2022-2023, its exciting that you have the chance now to  
24 guide them according to your experience and your wisdom.

25 *Break*

26 **Natasha Thorpe:** I am going to put up the map of East Island at closure. Our focus is to look  
27 at East Island. This island. What areas on east island would you want to sample  
28 and why? The blue lines are where Diavik thinks there will be water flow, that's  
29 where there will be cuts in the dike, that's what they are planning for. Are there  
30 places on the land, in some of these water bodies, maybe where the two pits are?  
31 We are free to take a marker and mark the map as well if you have ideas as to  
32 where you want monitoring to happen after closure. We could also break up into  
33 small groups. Colleen is getting you smaller maps. Let's look at the second  
34 question until the maps get here.

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1           Would you want to do any type of TK monitoring of water quality on the island  
2           after closure? Right now you are monitoring by tasting it, tea test, boiling it,  
3           looking for scum.

4   **Fred Sangris:** I know in the past before the mine was developed that whole island was a  
5           spawning area for fish. It's a very important area. The water drainage I am a little  
6           concerned about for the fish. I am concerned about the water quality on the one  
7           area of the bay (south west of the two pipes or east of the PKC) we seem to have a  
8           lot of breaks of water coming into that one little bay. That area seems shallow and  
9           would probably be a spawning area? So maybe we can talk about that part maybe  
10          we can make it a cell with slow drainage or we can take a look at the flow of  
11          water, how much water is going in. And that might be an area that sampling  
12          would take place for a very long time.

13 **Natasha Thorpe:** Fred that is great suggestions, I wonder how would you suggest to monitor  
14          science or TK?

15 **Fred Sangris:** TK alone can't tell you, science alone can't tell you but I think, combined, I think  
16          you could get the best information for long term, and that could be an area where  
17          we want to go. But along with that the mine is going to close in 2023 and also  
18          there was a mention of bond, the dollars that's there but long after Diavik leaves  
19          the property I'm not sure if the bond money is going to be there for a very long  
20          time or who is going to use it or are we going to use it as part of this committee.  
21          This kind of committee needs to continue the work long after the mine leaves  
22          because we need to continue working and monitoring this place here, providing  
23          the best TK recommendations as possible but along with that I think there has to  
24          be dollars put aside for this committee so that other people involved and sampling  
25          and the information and reporting is done. I think the money might be an issue, if  
26          the money is not available then we can't go any further.

27 **Natasha Thorpe:** That sounds to me like a recommendation. That money be set aside to  
28          continue and whether that's from the bond, whether that's from the government it  
29          may involve asking or having the TK Panel put together a letter or formal  
30          recommendation to the government.

31 **Fred Sangris:** I agree, I'm not sure of the amount. But I think for the long term monitoring, there  
32          might be a long term impact we don't know, but I think it would need to be a  
33          substantial amount of money set aside so that monitoring continues with this. At  
34          the end we all want to see a beautiful thriving island again. The little critters that  
35          were on the island before maybe they could be returned.

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1 **Natasha Thorpe:** I am wondering if anyone has ideas if you imagined the youth or Elders  
2 going back out to monitor East Island using TK, what would that look like?

3 **Fred Sangris:** I think it's important to because many Aboriginal people have TK since this is the  
4 very first of the mines that are working this way, it could be a model that could be  
5 built for the future for the other mines. I think for many of us we could pass on  
6 the traditional knowledge and then the youth need to continue that roll. I think it's  
7 important for the young people to learn about the TK and how it works and we are  
8 going to be partners with mine industry in the future, there is no way we are going  
9 to walk away from it because we all need the jobs, we need the economy we need,  
10 the young people are looking for a future. But I think we can work with that but  
11 also passing on our information and passing on our TK so that these things are  
12 taken care of long after the mines are gone and the healing process continues, so  
13 that there is no big impact. We want the herds of caribou to come back and some  
14 people may not agree with me but I hunt caribou a lot and I know the caribou will  
15 come back to this island. This island was an important caribou habitat at one time  
16 and we have to make that island, design it so that the animals will come back, the  
17 caribou will come back to it and other animals as well and use the island again.

18 We also have youth that are trained in the environmental fields they could be  
19 scientists. A partnership should be struck with the First Nations community and  
20 the governments. This could be a model the way we design this.

21 **Bobby Algona:** Looking at the water currents around the lake I've had a little discussion  
22 earlier on the panel even over the summer. I have asked this question and I didn't  
23 really get the full answer, of all the monitoring of water currents around the lake, I  
24 am wondering have the currents been monitored around the little bays? I was  
25 really wondering if there was any monitoring in those areas and as a hunter and  
26 trapper trying to find fish and coming to know these little bays. Fish need water  
27 currents to move around on the lake and coming to know these little bays no  
28 matter how small they are, I see the water currents when I am fishing you set your  
29 fish line down in the water, you see the curve on the line all the time, that's the  
30 water currents in those areas. And if you put it down later it's going in a different  
31 direction. As you know the moon has something to do with this water currents  
32 even out on the ocean you see these water currents moving back and forth all  
33 along the ocean. I was wondering if there was any water currents in these areas?  
34 When you look at that fish and land you know there are currents in these lakes  
35 and no matter how small the lake is there is still the current, its still there. I always  
36 find no matter how small the bay is there is a current. Those would be the places  
37 to monitor because of the . . . (stops).

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1 I recommend that those dikes not be open for many years after the mine closes,  
2 same as those blue lines. Until we can monitor the seepage spots that the mine  
3 has. If they are not drastically changing then when we are all comfortable and we  
4 can monitor these as well. Don't break any dikes or channels for a number of  
5 years after the mine is closed.

6 **Natasha Thorpe:** I wonder two things Bobby, one when you say monitor the seepage so that  
7 you are satisfied how exactly would you monitor it by tasting, by looking.

8 **Bobby Algona:** We can be working along with the scientists as well. We don't really want  
9 to be tasting it or do anything with it. I think we will be working closely with the  
10 scientists after closure. I think science can help us a lot in those ways too.

11 **Natasha Thorpe:** So I am hearing you wouldn't want to taste the water on East Island? Is  
12 that a general feeling? Right, we taste it at the camp from the big lake, but right  
13 now we are talking specifically on East Island.

14 Everybody agrees? (Yes.) Okay.

15 **Phoebe Rabesca:** I do agree with Bobby not to open up the dikes. If you look at the map  
16 right now you see the big two giant holes and once the water's covering it, it's  
17 there forever. 200 years, 300 hundred years. And also with the North Country  
18 where there is contamination in the rock, chemicals. That is there forever. Then if  
19 you look at the PK that to, there's slime inside and that too is contaminated and  
20 this land is not reversible 100% because, and I'm sure Diavik doesn't want to be  
21 accountable after they leave, they want to make sure everything is done. That's  
22 the reason why they created the TK Panel to get the Elders perspective, to get the  
23 peoples perspective and for me this Panel right now, this day and age, while we  
24 are making the decisions if we make one or two mistakes and we didn't do  
25 nothing right, 150 years from now they are going to say the TK Panel didn't do it  
26 right. Diavik can say the TK Panel didn't do it right because they created this  
27 committee because they don't want to be accountable and then with the bond,  
28 Fred is talking about the bond because he wants money there, its true. Diavik  
29 came into our traditional area, a hunting area and they did all that, they got the  
30 money they want, they got the diamonds they want and now, if you think about it,  
31 they don't want to be accountable for it. And now they say well let's ask the  
32 government for money. You can't just look at the government, Diavik has to be  
33 accountable. I know that Diavik and Rio Tinto don't want to be accountable. It's  
34 not like Giant Mine. And if we think about it the water is going to be there. It's  
35 flowing through Kugluktuk, 50 years from now what is it going to be like when  
36 you are not there. 50 years ago by this time it use to be -50 out on the trap line,

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1 now it's -12, we are 40 degrees above normal if we think about it. My mom when  
2 she was growing up in the bush it was -60 in the month of December. Global  
3 warming is not going to be reversible for a very long time. Tar sands is flowing  
4 this way, ray rock is flowing this way, the j-pipe is eventually going to flow into  
5 your area.

6 **Natasha Thorpe:** Thank you very much for those thoughtful comments. It's not easy for  
7 anyone to plan for these types of events. One thing you mentioned about the bond  
8 to clarify, the bond is not government money, the bond is Diavik's money that  
9 they have to put aside. I understand they put aside 4 million dollars a year. The  
10 government requires that Diavik has 150 million dollar bond set aside and to have  
11 that available. Its not government money that funds the bond.

12 I wonder about different times in the moon cycle or the different moons over the  
13 12 moons of the year. Are there ways that your knowledge of moon phases and  
14 how they affect water quality or water quantity? I am wondering if that expertise  
15 that TK holders have about the moon might affect how you monitor the water  
16 based on the moon.

17 **August Enzo:** Can you please repeat what you said about the moon?

18 **Natasha Thorpe:** I was listening to Bobby talk about the moon and about how it affects  
19 water currents and it made me wonder if that TK that you have about how the  
20 moon affects water - quality, quantity, how it tastes, how it moves, how deep or  
21 shallow it is - whether there is anything that could be applied to how you want to  
22 monitor water in the future on the island?

23 **August Enzo:** The moon you are talking about what it does to the land, to the world the  
24 way the creator made it, it's no different there is nothing changed for me same as  
25 the sun. Now we are talking about the mine and that island and are there any  
26 small mice and ground squirrels around? Because I have been in there a lot of  
27 times and when I get there it's just like I am in jail. They don't let me out to walk  
28 around (laughing) they all know it so are there any small creatures like mice and  
29 ground squirrels? Yes okay, well that creature and rabbit they will do their part  
30 we know there will be wolves and caribou.

31 **Mike Francis:** Airstrip what is going to happen with that?

32 **Colleen English:** We have had some feedback from the panel on that in the past in that the  
33 preference is to leave it for an emergency airstrip. The thing that Diavik would  
34 need to look into with that, that we have talked about before too, is that it is a  
35 liability. So if that airstrip is left and it's not signed off as an uncontrolled airstrip

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1 that's there 'just in case', its too much of a liability for Diavik. Because the reality  
2 is that airstrip is going to deteriorate over time, when Diavik's not maintaining it.  
3 So it wouldn't be that nice smooth perfect airstrip, and a plane could come in and  
4 try to land and then end up crashing because it is bumpy and it has had some  
5 permafrost heaving. If it were to be left intact, again coming back to the closure  
6 scenario and working with the governments, we would need to get that as an  
7 agreement from everyone. Everyone would need to sign it off that it is okay to be  
8 left as is and only as an emergency landing strip, including government.

9 **Natasha Thorpe:** The 3<sup>rd</sup> question we have is what features or types of landscape that would  
10 help to heal the water draining from the land? What I have heard from you in the  
11 past is that you often get drinking water from where a muskeg or wet land filters  
12 the water and you get it from the other side, because you know from your  
13 expertise that the wet land helps to clean the water so I am wondering if there is  
14 any features or types of landscape or plants that would help to clean or heal the  
15 water that drains from the land after closure?

16 **Nancy Kadlun:** I am worried about the pits, they are really, really big and if the water sits  
17 there for a long time and its going to be very contaminated to go back to the lake.

18 **Natasha Thorpe:** So how would you like to monitor that water, how would you know its  
19 ok? Bobby always says ease in your mind and ease in your heart, that water is  
20 healthy.

21 **Nancy Kadlun:** Maybe do samples again in about 30-40 years from after it sits there for a  
22 while because it's not going to be the same as soon as they close it. They might  
23 think it's clean but in about 40-50 years time that water is going to be very bad.

24 **August Enzo:** You are talking about sampling water after its all closed. I know they are  
25 going to do it but after its closed they should take samples around the island that  
26 year, and a year later do it again to be on the safe side. Saying 30 years is too long  
27 for them.

28 **Natasha Thorpe:** Did you mean every year for 30 years?

29 **Nancy Kadlun:** I was saying if the water sits in that area for a long time it's going to be  
30 contaminated in the big pit and how would that get cleaned.

31 **Natasha Thorpe:** I think what I heard from Gord yesterday is that the contaminant is that the  
32 water is saltier the deeper you go. So Diavik's concern is that salty water that  
33 comes out of the deeper part of the ground would mix with the water in the pit.

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1 But as I understand there is not a concern for a chemical contamination. Colleen  
2 did you want to speak, did I get that right? Yes.

3 **Ed Jones:** Water lies in various layers and salt water is heavy and it will sink to the bottom. I  
4 don't think we should be too concerned about salt. It's the ammonium nitrate that  
5 they use for blasting, but it is also a fertilizer so my only worry is that the  
6 ammonium nitrate is a fertilizer and you are maybe going to get a lot of algae and  
7 plants because of that but the salt itself, that type of salt I wouldn't be concerned  
8 about.

9 **Natasha Thorpe:** Thanks for clarifying that Ed.

10 **Phoebe Rabesca:** For the open pit, what if they just do a slow seepage and see what is  
11 coming out of there.

12 **Colleen English:** Phoebe, do you mean when you are filling the pits a slow seepage? Or  
13 what do you mean.

14 **Phoebe Rabesca:** No after both pits are filled doing slow seepage from it. Then monitor  
15 what is coming from it.

16 **Colleen English:** The question is how are you going to fill it? It is the reverse to how we  
17 emptied it. We will have a pipe from the lake to fill the pits. The ground water in  
18 the bottom of the pits will also be seeping in. So the idea is that you fill it quickly,  
19 so you reduce the amount of salt water and it stays at the bottom.

20 So when we talked about filling the pits, they will be full and sitting with that  
21 water mixture, so there will be the ground water in there and they will have  
22 probably that 5 year period to make sure that water is okay. When the breaches  
23 are put into the dyke the only thing it is doing is re-connecting the pit water. By  
24 then they will know it's good to connect with the lake, which is just more good  
25 water. So there wouldn't be a big change.

26 **Phoebe Rabesca:** I was listening to Nancy about not opening, you know, to leave it as it is.  
27 But then I thought about it that if we just leave it as it is, what if there is  
28 contamination in there that's what they are talking about. But if they just open it  
29 slowly. So for 5 years you will be monitoring it before they open it up, that's what  
30 you are saying?

31 **Colleen English:** Diavik is estimating at least 5 years. The way Diavik sees it is that if they  
32 can't connect the pits to the lake then Diavik has failed. If that water is not good  
33 enough to reconnect then they have failed.



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1 **Kathy Arden:** I believe Gord said too, before they fill the pits they will wash the pits down first  
2 and then pump that water out and test it. And then over the period of 5 years they  
3 will be testing it.

4 **Colleen English:** Mostly correct. The pit wall washing has already been tested and have that  
5 in the presentation this afternoon. At this point, washing the walls doesn't make a  
6 significant change to the water quality so I don't think that they are planning on  
7 washing at the end.

8 **August Enzo:** Are they going to fill up the pit before or after the mine closes?

9 **Colleen English:** It would be after. The reason we can't fill the pits with the rock or water is  
10 because there are people working under those pits.

11 **Natasha Thorpe:** We have smaller versions of these maps and I am wondering if you feel  
12 ready to break into smaller groups and talk about perhaps where monitoring could  
13 take place, how monitoring could take place. What sort of features Diavik might  
14 consider constructing or creating that would help protect water quality.

15 Working with the maps

16 **Fred Sangris:** We still got time until noon. What we are doing is trying to educate each other.  
17 The pit that we are talking about right now, those pits are dead pits, there is no life  
18 in that pit. I think what might help in the future would be to make those pits  
19 lively. The beavers on land they work very good and they make life. I think the pit  
20 needs some critters to bring life back to the pit. The little critters will bring life  
21 back to the pits. I think for this one here [A154] you just need to put something in  
22 there. Put some live things in there, bugs. Sometimes I take my caribou hide and  
23 put it in the lake and then a week later I go back and it's cleaned; the bugs cleaned  
24 the hide.

25 The beaver can do a lot of wonderful work, but you can't put the beaver there  
26 because there's no trees there. What you can do to drain and filter the water, you  
27 want to filter it using moss and such but there are different ways to make things  
28 live. And by the time it reaches the lake its filtered. And maybe that's how we do  
29 it; find those beaches and it will filter it and in a few years it will have a filter  
30 system of its own.

31 **Natasha Thorpe:** Fred I just changed the slide up there to show you that I think, from your  
32 TK and the science, that you are both agreeing. Remember how Gord said this  
33 was the preferred route [for water flow from the PKC]? My understanding is that

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1 its because it allows for that longer route and that filtering through here [long  
2 drainage channel from PKC pond to LDG].

3 **Kathy Arden:** With regards to question 1 after the closure, maybe I missed something, is it  
4 referring to after those dikes are breached? Because I know that Diavik is going to  
5 monitor the water for 5 years within those dikes, so the question of what areas  
6 would you sample and why, is that after the breach?

7 **Joanne Barnaby:** Before and after.

8 **Louie Zoe:** Concerned about the water seepage and the water drainage from the rock pile and  
9 the drainage that goes through the ditches - somehow they should be monitored.  
10 Just one area that I am concerned about is if the dike is too deep and water might  
11 not move and so maybe contamination will develop in the future.

12 **Joanne Barnaby:** I believe that Louie was just stating his agreement with regards to  
13 continuous monitoring after the dikes have been breached and beyond the 5-7  
14 year period?

15 **Phoebe Rabesca:** I think what Louie is trying to say is about once the pits are filled with the  
16 water. When a river is flowing, it is always replacing the water, but in the dike  
17 there will not be continuous change in the water. So he wants to know about that.  
18 There is going to be no river flowing through it, so no fresh water circulating in  
19 there.

20 **Joanne Barnaby:** The concern is that you are not going to create a continuous flow of water  
21 because the dikes will still be in the way. There were natural currents before the  
22 dikes were built and he is concerned we will not get those back.

23 **Colleen English:** The cuts in the dikes are where they are because Transport Canada  
24 regulates water ways and dictates where the cuts go because of line of sight. So if  
25 you came across this and you went into them you could see a way out from where  
26 you are.

27 Back to Louie's question, it will be different here then it use to be. This is going  
28 to be very sheltered and protected, there won't be as much wind and wave and  
29 current action as there was when this was a completely open lake.

30 **Joanne Barnaby:** Almost like creating a new bay.

31 **Natasha Thorpe:** The blue lines [on site map], why are they there?

32 **Colleen English:** The blue lines are where we have existing collections ponds or where we  
33 have broken off where natural flow has been in the past and we would be

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1 reconnecting that natural flow after we are not trying to contain all of that water  
2 that comes off the mine site anymore. When I look at the SNP Program that Gord  
3 was talking about, and I look at some of these points, I think about things that the  
4 communities have said that I have heard over the years. You've said within the  
5 Panel that you want to know where water is going, you want to know what that  
6 water looks like. And I think that the SNP program that exists right now very  
7 much aligns with that concern. It's looking at all of those points where you can  
8 lose water off of the mine site into the natural environment and making sure that,  
9 that water is contained from a management perspective or sampled from a  
10 monitoring perspective. I think that's where you want to get to with closure is  
11 identifying those places of concern where water is going to come back into the  
12 environment and making sure that those are being watched.

13 And if there are ideas about how to help that water along the way, with moss or  
14 plants or whatever it is, then making sure that's incorporated into the design. So I  
15 think those are the two biggest things that you can probably contribute with this  
16 piece.

17 **Joanne Barnaby:** So the blue lines that are up there now, do they reflect where the natural  
18 flow was before the mine?

19 **Colleen English:** Yes, most if not all of them are natural drainage spots that were blocked  
20 for mining purposes.

21 **Joanne Barnaby:** Any other questions, concerns, ideas.

22 **Phoebe Rabesca:** She was talking about drainage and they are going to do it again. Does  
23 Diavik have anything in place about what is going to be done say in 20 years if  
24 contaminants are found?

25 **Joanne Barnaby:** Can you address what commitments would Diavik have 20 years after  
26 closure.

27 **Colleen English:** I talked a little bit yesterday about the process for closure, with  
28 governments and the mine and we talked about the security deposit, the bond.  
29 There are a lot of unknowns about that final tick in the box for the mine and what  
30 the governments will want and what we end up doing with security deposits and  
31 that sort of thing. So it would be a best guess, just my best guess, that it's likely  
32 the government is going to come back at the end - when we they are wrapping up  
33 and the mine is clean and they have given Diavik the okay to walk away - it's  
34 probably likely that they are still going to ask for a little pot of money that's  
35 available for things like that. And when I say little, it's probably still millions of

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1 dollars. So that would be their back pocket protection in the case that something  
2 unexpected came up in the future. So that is a likely scenario, in my opinion, but  
3 we don't know that for sure. We don't know what that's going to look like in  
4 terms of that final agreement between all of the parties that are interested in this.  
5 It's something to keep on the radar, it's something to think about for the future  
6 and start having those conversations.

7 **Joanne Barnaby:** Any further questions, comments or recommendations? Do you want to  
8 spend some time on the maps to start identifying locations for either monitoring  
9 or action to ensure that some kind of natural filtering system is supported or  
10 developed?

11 Spend 15 minutes looking at the maps and writing on them, then come back and  
12 explain what you are proposing.

13 *Lunch Break until 1PM*

14 **Joanne Barnaby:** So what we would like to have everybody do is present their ideas that  
15 they came up with when they were reviewing their maps and any  
16 recommendations that you have.

17 **Kathy Arden:** So we came up with what areas would you sample and why. Lac du Sauvage  
18 entry and exit because of the j-pipe, and even though it's not Diavik's  
19 responsibility to find out what happens there, there still could be contaminants  
20 coming through so we would like to see that one continue to be sampled.

21 Going on the other side of the lake, is the exit to Coppermine river as well all  
22 around the shore line of the [East] island to check for any new algae growth. Even  
23 though we can somewhat predict the drainage, there may still be drainage places  
24 that may change after they are done their reclamation work. Check all the  
25 breached drainage areas too. We would like to see this happen in May and June  
26 when the spring runoff happens, this will give a better indication of what is  
27 coming off the island.

28 Bobby had mentioned the North Inlet containment which has a lot of heavy  
29 metals in it and, even though Diavik would be cleaning that out and ensuring that  
30 the water is going to be cleaned before they breach that dam to have it flow back  
31 in with Lac de Gras, we would like it monitored for contaminants continuously to  
32 make sure the metals are cleaned up.

33 How wide and deep is the pit breaches going to be??

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- 1 **Colleen English:** Each breach is going to be about 30 meters (90 feet) wide and the depth  
2 would be variable, ~10 meters [note: later corrected to 2-3 m below low water  
3 depth, as per ICRP]
- 4 **Phoebe Rabesca:** Diavik should provide a list of chemicals in the type 3 rock and in the  
5 slime so the TK Panel know what they are dealing with.
- 6 Diavik should provide bonds for future use for studying, monitoring and testing.
- 7 Diavik should reseed the land and use dirt and human waste so the land can grow  
8 faster. And they should provide a report of the water and the fish sampling every  
9 year after the mine closes to see what's going on and to see what's in it.
- 10 **Janelle Nitsiza:** Where the PKC is, so the bodies of the water around it, there should be  
11 lots of sampling in that area because we don't know what that slime is, you can't  
12 define the slimes to the Elders. So I agree with Phoebe that we need to know what  
13 these chemicals are and we need proper translations of chemicals so they [Elders]  
14 can understand.
- 15 **Fred Sangris:** What we did with the two open pits, we were talking about putting little insects in  
16 there and the red surrounding it is moss. So if the water flow is going back and  
17 forth, then anything bad will be caught in the moss.
- 18 PKC area there are two streams coming out and what we did is the red area is just  
19 for when the water starts to flow. We want to put a filtering system and/or moss;  
20 we talked about possibly two different systems, one industrial one and then the  
21 Traditional method of moss. Line them up along the stream that goes on to the  
22 lake and work hard at the lake so it is clean water at the lake.
- 23 **Mary Louise Black:** North Country Rock pile and the PKC should be monitored and sampled  
24 due to chemicals, all run offs from the mine should also be sampled.
- 25 Monitor and sample the north inlet containment and its run off continuously.
- 26 Continuing to use TK and scientists together.
- 27 **Lucas Enzo:** The dust on the North Country rock pile, does it have any chemicals that can  
28 affect the air quality and lake?
- 29 **Joanne Barnaby:** We will return to the discussion around recommendations for monitoring  
30 and fish habitat or action that can be taken to rebuild fish habitat on the shoreline  
31 and with shoals later on today.
- 32 Right now we are going to hear from Diavik

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1 *Presentation – Open Pit Closure: Fish Habitat and Shoreline Construction (Appendix I)*

2 *\*\*\*\*This was not recorded. Sound system did not turn back on until DFO was talking.\*\*\*\**

3 **Colleen English:** Water depth in shoal area would be approximately 15 feet.

4 The plan is not to wash the pit walls because Lac de Gras water ‘wins’ in that the  
5 amount and quality of good water beats out the amount of chemical.

6 Fish use some reefs more why is that? Is it because it is shallower, closer to the  
7 bay, more moss or more plants? What is your experience?

8 What should the finished reef look like? How big should the boulders be? What is  
9 going to encourage the fish to use it most?

10 Should the first part of the roads [that currently go into the pits] get left for easy  
11 passage for animals in and out of the water? And the shoreline, what should it  
12 look like?

13 Questions?

14 **Bobby Algona:** This is concerning the breach. I am thinking you are going to be breaching  
15 the channels to the same levels as the original lake bottom?

16 **Colleen English:** The width is 30 meters. I think the depth is based on the bottom so it  
17 would vary. [note: later corrected to 2-3 m below low water depth, as per ICRP]

18 **Bobby Algona:** Because it’s a pit that is very, very deep already. When you open that or  
19 breach it I think there will be more water going in and out because of the depth of  
20 the pit itself. There are some islands that have shoals and you can see the water  
21 going in some directions because of the shoals. Right in the middle of the lake its  
22 always moving, the water is always moving under the ice so the ice is thinner  
23 there. There is going to be movement there too. So it’s something to think about  
24 too.

25 **Colleen English:** Are there any other questions or do we want to get DFO’s information  
26 first?

27 *Presentation - Artificial Reefs as Offsetting in the North (DFO, Julie Marentette) (Appendix J)*

28 *\*\*\*\*Recording started again\*\*\*\**

29 **Fred Sangris:** As fisherman when we are ready to set a net we know what to look for, we are  
30 looking for the right place where fish are going to be. We know where there are  
31 going to be spawning areas, we don’t want to fish in spawning areas because the

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1 fish have a different texture and taste different. The last picture where you see a  
2 lot of boulders and you said the current is strong, that's where I would set a net to  
3 catch a big fish, 6lb to 10 lb. The fish will go back and forth. They like that deep  
4 area and they go right through and they are not going to lay their eggs there. It's  
5 too cold and too deep. And the waves play a big role in it. They like to lay their  
6 eggs in a very sandy area, maybe not sandy but gravel, and it has to have a slope.  
7 The current can't be really strong but it has to be moving.

8 Where they built the dike, I was fishing there and the gravel was beautiful there  
9 and it looked like a beautiful area for spawning fish. So I threw a couple of hooks  
10 in and I caught some fish there and I noticed that the water was moving slowing.  
11 When the fish are born they like that shallow area with a little bit of gravel. They  
12 don't like the sand, and most areas in the east where there is a lot of fine sand you  
13 always find dead minnows floating around. They have no protection to hide from  
14 the waves so the waves just wash them up and that's why we find lots of minnows  
15 on those sandy beaches. After they are born they want to go into the shallow  
16 areas, so through the islands you will find lots of minnows. But they are not going  
17 to go in the pits.

18 I have a camp just outside the city here. Every spring I have graylings coming in,  
19 it's a small little bay and maybe from here to the stairs and 6-8 feet where the  
20 water comes in it's a little bay. And the graylings come in every June and they are  
21 only there for about a week. Shallow, big boulders and if there are other big fish  
22 that come around they can't get into the shallow areas where the minnows are.  
23 The current is the important part.

24 **Joanne Barnaby:** Are there other comments, observations, questions?

25 **Bobby Algona:** Fred was talking about the fish. I agree I find a lot of these fish beds when  
26 you are out fishing. There is another concern I want to talk about. Sometimes we  
27 come across a lake we don't know about the shoals and we don't know how thick  
28 the ice is because of the movement of the lake. And depending on how deep the  
29 shoal is from the top, it's going to be moving all the time from side to side  
30 whichever way the water is moving. Traveling in Lac de Gras I have come to  
31 know where all these shoals are in the winter and they can be really shallow and  
32 the ice can be really thin in those areas. I am wondering how deep are the  
33 artificial shoals going to be that Diavik is going to be putting in? I have come to  
34 know these in my travels and I agree these fish tend to come to the shoals,  
35 because of these shoals the water movement is more pronounced in these areas;  
36 you need the water movement for the spawning. But I have come across a lot of  
37 shoals especially around my lake on Pellet Lake where I grew up and lived all my

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1 life and there are many, many shoals on this lake and I have to be really, really  
2 careful around those areas.

3 And living right next to the river, the river doesn't freeze at 40 below. The river  
4 does not freeze year round, depending on how the moon is moving, one way now  
5 and then a few hours later it's moving a different direction. I have come to know a  
6 lot of these types of water.

7 So I want to know about the shoals so I can be safe when coming back to this  
8 lake.

9 **Gord Macdonald:** That is a good thing for you to tell us: how deep they should be so you  
10 don't fall through? Just picking up with what you said about currents, and what  
11 Fred said, it fits with this story as to why there may not be eggs there. I wanted to  
12 bring you back to the reefs that we are talking about are on the inside of the dikes.

13 We are not setting this up to be a high current or spawning area, but to be more of  
14 a nursing or rearing habitat.

15 We need to look at what we are targeting.

16 **Colleen English:** Further to answer your question, like Gord said, some of the feedback we  
17 are looking for is what should those shoals look like, how big or how small should  
18 they be? This [referring to diagram] is what is in the closure plan right now:

19 Water will be 15-30 feet deep and the shoals will be 6-9 feet high.

20 The cuts in the dike will be 9 feet below the low water level. I was wrong earlier  
21 when I said they would be variable based on bottom depth, so my apologies for  
22 that.

23 **Bobby Algona:** When mining companies say they want it to look as pristine and as natural  
24 as it was before. Why do we want to do this? The mine wants to put everything  
25 back to as natural as it was before it started, why do we want to put these natural  
26 fish shoals there?

27 I am having a hard time with this because it's not as natural and pristine as it was  
28 before the mine started. Artificial reefs do bring fish alright but I am having a  
29 hard time agreeing to this because it's not as natural and pristine as it was before  
30 the mine started in the first place. That's what I am having a hard time with,  
31 thinking about it myself. The mines said they want to bring it back as natural as  
32 we can after the mine closure has been set in place.



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- 1 **Julie (DFO):** When the Fisheries Act authorization was issued for this project, this type of  
2 rehabilitation project was built into that authorization to try and bring it back to a  
3 more natural state. So that's why we are talking about this now, is that it was built  
4 into the authorization that Diavik received about 20 years ago. There is also the  
5 pit that's still lost habitat, so we are trying to add a little bit more than what was  
6 permanently lost.
- 7 **Natasha Thorpe:** Bobby what is your concern about them creating shoals?
- 8 **Bobby Algona:** My concern is that, depending on how thick the ice is and how deep the  
9 shoal is going to be from the top, towards the end of the year I noticed some  
10 places as the ice starts to get thicker and closer to the bottom of the lake you see  
11 in those shoals the water currents being more pronounced. That was my big  
12 concern, for safety. Am I going to be safe coming to this place when there is a  
13 shoal there that I didn't know about, and it's keeping the ice thin.
- 14 **Joanne Barnaby:** Is there any plans to mark these areas somehow?
- 15 **Colleen English:** Not as of yet but the dike will still largely be there so that should be a bit  
16 of a marker.
- 17 **Bobby Algona:** I am thinking about some people that didn't come to this group and maybe  
18 there are going to be people traveling in this area. And they may travel into that  
19 dike. I think it's really something to think about that they didn't know that these  
20 shoals would be there.
- 21 **Gord Macdonald:** We should definitely design the shoals to be safe. So if the shoals should  
22 only be 3 meters under, then we need to know that.
- 23 **Natasha Thorpe:** So maybe there is an approximate water depth that should be above the  
24 shoal in order for your minds to be at ease for traveling?
- 25 **Ed Jones:** I think the answer is to build the shoals high enough to be viewed above the water  
26 level.
- 27 **Natasha Thorpe:** Its one option.
- 28 **Gord Macdonald:** So that is more like an island then a shoal, which is fine, it is just different.  
29 But then this could work.
- 30 **Fred Sangris:** I agree it might be good to create piles of sands almost similar to the way it was in  
31 the beginning and the water runs through it with a bit of current, in some areas its  
32 deep and in some areas its shallow. There are some areas that we avoid, we go out  
33 to the middle where it is deeper. And that way is better if it is underwater it will

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1 freeze over, the ice will be really thick if you use sand and rocks it will be good  
2 because that's the way it was in the beginning and the fish will come back.

3 Outside the dike is where it will be perfect for bigger fish and other fish to swim  
4 along, but not good for spawning. It might be good to create some areas for fish to  
5 come up back and forth. Graylings love shallow water.

6 **Natasha Thorpe:** So what I am understanding, Colleen was saying right over here [shoal  
7 area inside dike], that's one area that Diavik is proposing to put those finger  
8 shoals. You are saying throw some sand or throw some gravel on these areas, but  
9 don't throw so much that those areas would become islands?

10 **Fred Sangris:** You need a little bit of sand and gravel so the eggs can float around.

11 **Gord Macdonald:** It sounds like we are kind of talking about the same thing. We would have  
12 these fingers of rock, but the fingers of rock are just to break up the sand beds that  
13 are in between. If you just piled the sand there with nothing to break it up, they  
14 would probably all just flatten out, so the idea was to separate them with fingers  
15 of rock. The key thing was making it shallow, something like 8 meters deep.

16 **Fred Sangris:** You should try all different levels. I will tell you how I found gold. Just north of  
17 Gordon Lake on the south side my dad asked me to go down to the get some  
18 water. I see all these yellow things so I ran back and told my dad I found gold and  
19 I brought him back to the water. But it wasn't gold, it was fish eggs.

20 **Gord Macdonald:** But other than islands, we were thinking everything else needed to be at  
21 least 6 feet or deeper so that the ice wouldn't freeze right to it, and for it to be  
22 more useful fish habitat in this lake.

23 **Fred Sangris:** I think that would help, having some deeper and some shallower. We are trying to  
24 get bigger fisher so we will go on the outside where it's deep.

25 **Gord Macdonald:** You might not want to go fishing in here, but the fish that you are catching  
26 on the outside may have come from inside, so they may have been raised there or  
27 go to feed there certain times a year. But that's not where you are going to go to  
28 catch them, you would stay out where there was more current.

29 **Natasha Thorpe:** Any questions for DFO??

30 **August Enzoe:** Look way out over there, it's a big lake. It [map] shows how big the lake  
31 is and its only part of it. You guys are working to put a reef in a little spot there  
32 for spawning. It doesn't make sense. Because with that big lake, all the fish will  
33 go back there, but there is a different spot for spawning. It's like a city for fish.

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1 **Julie (DFO):** I like the idea of it being a city for fish. I think if at least some of the fish in the  
2 lake are happy there, that will make us happy too.

3 **Fred Sangris:** I know we are trying to create something and trying to bring something back. A  
4 good example is the Giant Mine and the Yellowknife Bay. There was a lot of  
5 underground blasting shock and it drove a lot of fish out into the lake. It's been  
6 over seventy years, but now they are returning. We have been monitoring the fish  
7 and we have been telling DFO they are coming back, but the only person that  
8 listened to us was a guy named [Paul] Vecsei. So we brought him out there and  
9 said there are exciting things happening, they are coming home. So now we are  
10 waiting for the conies to run the river now after many, many years. But the same  
11 example might happen here because there has been a lot of blasting here and  
12 dynamite, so the fish might avoid this area for a while, As soon as the area is  
13 silent they will start making their way back slowly.

14 There was a federal election not too long ago, is there any DFO legislation  
15 changed now that Harper is out?

16 **Julie (DFO):** I don't think there has been enough time or if there are going to be any changes. I  
17 don't know, we will have to wait and see.

18 **Natasha Thorpe:** How long might it take for the fish to come home?

19 **Fred Sangris:** I think it won't take long, just a short few years. There are no jet boats, I'm not  
20 there to bug them, so once it's quiet they will come back.

21 **Natasha Thorpe:** We have some youth here who have been out monitoring; do you have any  
22 questions or comments?

23 **Gord Macdonald:** Julie, one thing we never thought about when we were first doing this  
24 design was the amount of terrestrial vegetation that would grow in dike in the  
25 interim. It's just so visible now in these pictures, but now we are wondering what  
26 should we do with it before we flood it? I kind of think it's a good thing to have  
27 that much organics left there when you flood it, that it might make a decent  
28 substrate. But I don't know that we thought about flooding something that's  
29 vegetated versus trying to cut it out before. What do we do with it before we flood  
30 it? Do we just leave it?

31 **Julie (DFO):** That's a good question. I am definitely not a plant expert and it has not occurred  
32 to me. I haven't heard of any other files that have had to think about this issue so  
33 we will have to look into it.

34 **Natasha Thorpe:** I wonder if any of the TK holders have any ideas on that.

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1 **Fred Sangris:** I am trying to help so I can fish there one day. Those two pits are dead pits. You  
2 can start putting vegetation on the side as the water is coming back. If you just fill  
3 it, it will stay dead for a long time but if you add the bugs and put little critters  
4 and plants, it will come back much faster. Bring the critters back. I was just  
5 showing Colleen about this one bug that the fish don't try to eat, those are the  
6 bugs that you want to bring in there with the plants and the mud and the sediment.

7 *Break*

8 **Natasha Thorpe:** Thank you for such a productive discussion on the shoals. This won't be  
9 the only time that the TK Panel will have a chance to discuss this.

10 We spent most of our time talking about reefs before the break and we still have  
11 the discussion around shore lines. Same three questions for the shoreline.

12 Gord can you clarify that we are talking about around East Island?

13 **Colleen English:** No not really. Most of the shore around East Island is actually intact so a  
14 lot of it, if you look [at the satellite image] you can see a lot of the areas of the  
15 mine don't extend right to the shore. So primarily we are talking about these areas  
16 in here [open pit access areas], because this will become a shoreline again, as well  
17 as over at A21.

18 **Gord Macdonald:** This is almost original shoreline. But this has a distinct shape because that  
19 is the edge of the pit. So is that okay if it's going to be a sheer rock wall? There  
20 are roads into each of the pits, is it okay to leave them?

21 **Joanne Barnaby:** So are we talking about the outside of the dikes, too?

22 **Gord Macdonald:** We aren't because, just like the discussions this morning, it's pretty useful  
23 habitat the way it is. It's a steep, rocky shoal.

24 **Bobby Algona:** Leaving the outside of the dike the way it is, is fine. Even the inside would  
25 be something to look at. We are going to be looking at it for a number of years  
26 and if something should come up that we are not happy with, we can bring it up  
27 then. I think just looking at it maybe we leave it for a year or so.

28 **Joanne Barnaby:** I think we need to keep in mind that Diavik is updating their closure plan  
29 this coming year and so deciding to wait and see what happens and then trying to  
30 introduce some action for perhaps changing the shoreline at a later point might be  
31 more difficult if we don't try to start planning for that now. So there are two very  
32 different scenarios. One pit is very steep with a big cliff, the other is not, it is  
33 more gradual. Is there any problem that anyone sees with either of these?

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

1 **Fred Sangris:** How steep is the wall?

2 **Gord Macdonald:** About 45 feet from the top to the bottom, but the water level would be part  
3 way along it. So let's say around 30 feet deep in the water and about 10 feet out of  
4 the water. It's not a huge cliff.

5 **Joanne Barnaby:** Thoughts, concerns, ideas?

6 **Fred Sangris:** I am not sure what the high ground is there. I am just wondering if the wall is too  
7 high for caribou or is it going to go to the water level? I ask because I see caribou  
8 falling onto the ice.

9 **Gord Macdonald:** If the water level was the floor the land would be the ceiling. So if a  
10 caribou walked off that into the water it wouldn't be able to get back up. It would  
11 have to go sideways until it found somewhere to get out.

12 **August Enzo:** I was just looking at the wall and you are going to make a shore and we  
13 don't know how it looks so I was just wondering if a few of us goes down to look  
14 at it then we would have more ideas.

15 **Joanne Barnaby:** If we looked at it now, we wouldn't be seeing what it would look like after  
16 the water is brought back in. That's the problem with trying to see it now; you  
17 still have to picture that water there.

18 **August Enzo:** When we get there the working guy would tell us where the water would  
19 be and then we would look at it and then look at the cliff.

20 **Natasha Thorpe:** It sounds like it's more of a caribou problem than fish habitat concern and  
21 I know that we have a session on caribou coming up.

22 **Fred Sangris:** August is right it's really hard to tell without being there. It is a concern for  
23 caribou but it is also a fish habitat too. If he says 45 feet then we need to know  
24 how far from the wall to the other edge. So if we were to advise that you fill it in  
25 with gravel or materials then we need to know how far it's going to go. So it's  
26 really difficult to say without looking at it. You could create a good fish habitat  
27 around the edge but you need to see because as the pit goes it's like stairs so you  
28 need to see what's there.

29 **Gord Macdonald:** We're asking about shoreline here but we are not talking about building  
30 any reefs or anything on these shores. That's mostly why we are putting it out in  
31 these bigger benches because we know we have that area to work with. Because  
32 you are right, these stairs are pretty narrow, really, going down into the pit. The  
33 whole distance of the cliff is about 1 km.

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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

- 1 **Fred Sangris:** Sometimes when the migration is happening the lead caribou could lead. But  
2 sometimes they go on the run and at night time they are not going to see what's in  
3 front of them. I have seen caribou go over cliffs in the past chased by wolves. But  
4 anyways let's think about it.
- 5 **Kathy Arden:** How long would it take the fish to discover the opening in the dike?
- 6 **Natasha Thorpe:** Any ideas?
- 7 **Louie Zoe:** Yes I understand there is a drop about 10 feet which is dangerous for the caribou  
8 and the wolves and the foxes. So before the water is pumped back in there, I  
9 suggest maybe you put some sort of a slope. Or if you want to leave it as it is, I  
10 suggest you put some sort of skirting on it or fence of some sort.
- 11 **Natasha Thorpe:** A while ago I remember when Ekati mine had a fish diversion channel  
12 which was a cliff area that the community members were worried about, and they  
13 build *inuksuk* / *inuksuit* along the side. Is that what you mean?
- 14 **Louie Zoe:** Even though sometimes there's a wolf pack that chases the caribou around and we  
15 just want to make it easier for the animals to get on top of the land not so much  
16 steep down around. Once the animal falls over the cliff it's not going to come out  
17 again.
- 18 **Natasha Thorpe:** Colleen also mentioned the road that is presently the pit road that would  
19 be a gradual slope going into the pit. Does anyone have any thoughts on that in  
20 terms of shoreline?
- 21 **Gord Macdonald:** There is a ramp in both pits; it's just like a boat ramp in each pit.
- 22 **August Enzo:** Which pit is that one?
- 23 **Gord Macdonald:** The small one. In the other one its more natural shoreline.
- 24 **Natasha Thorpe:** So the ramp would be a gradual ramp in. Should there be changes or can it  
25 stay as is?
- 26 **August Enzo:** I don't mind the way it is, the ramp. I am just wondering about the cliff. I  
27 would like to walk there before they put water there.
- 28 **Joanne Barnaby:** Okay so leaving that road in might act as a ramp that would allow caribou  
29 to get out if they get into that pit.
- 30 **Bobby Algona:** We have talked a lot about the North Country Rock Pile and slopes there  
31 so that caribou have an easier access to it to get away from bugs. I think if we

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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

1                   were to look at it like that we all want them to have easier access to land. I think  
2                   that at the cliff we should have a gradual slope where they might make it look like  
3                   the NCR pile and they can get in or out. And if caribou did get in then we want  
4                   them to be able to get out.

5 **Gord Macdonald:**   What if you left pieces of it as a cliff but add pieces of gradual slope for  
6                   the caribou?

7 **Bobby Algona:**       Yes, that would work.

8 **Joanne Barnaby:**   Any other comments? Are there other ideas for addressing the shoreline,  
9                   for address fish and fish habitat?

10 **Natasha Thorpe:**   What kind of shoreline are fish attracted to?

11 **Bobby Algona:**       Fish tend to look for spots where oxygen is coming in to the water. I have  
12                   come to know a lot of lakes along my travels and there are some places that there  
13                   are fish but no oxygen. Fish can also hear and feel the ice chisel and they come  
14                   there because they need the oxygen. There were some places where I have fished  
15                   and you don't jig because when the oxygen starts going down that hole the fish  
16                   come wanting the oxygen, and sometimes there are so many fish that you just put  
17                   your hook in and pull it out and you have a fish, and if you keep doing it you will  
18                   have a fish every time.

19                   They need oxygen year round.

20 **Joanne Barnaby:**   Other comments, other suggestions?

21 **Nancy Kadlun:**       These pits are really huge and they are going to be filled to the top and this  
22                   lake wow a lot of the water from the lake and then our river will be slow because  
23                   these pits will take most of the water.

24 **Joanne Barnaby:**   Does Diavik have an idea about what the difference in the lake depth  
25                   would be once the pits are filled?

26 **Gord Macdonald:**   I can't remember the numbers but it would be centimeters (cm) in  
27                   difference in the lake; it is hard to measure exactly. You won't be able to see the  
28                   difference and we would have a tough time measuring the difference. It looks like  
29                   a lot of water going into those pits but the lake is very big.

30                   It was looked at in the environmental assessment and it's continually asked. In  
31                   particular it's asked about when we're filling up the pit if Ekati and the J project  
32                   or any other pits will be filling at the same time. We have them all scheduled so it  
33                   doesn't happen at the same time. The real worry would be if you were trying to

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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

1 fill all the pits up at the same time, that's when you would have an effect on the  
2 lake level.

3 **Joanne Barnaby:** Do you have an idea on how long it would take to fill up one pit and  
4 would you be doing the two together or separately?

5 **Gord Macdonald:** The A154 and A418 are actually linked. They are joined underground, so  
6 if you start filling one you will fill up the other one. So both of those would be  
7 filled up at the same time, but A21 is separate and it would be filled up at a  
8 separate time. We are still talking about which ones to do first. There was  
9 originally a plan to do A21 first, it's a little smaller, learn from it, then apply it to  
10 the big pits. Lots of the decision is going to be about which one is available when.

11 With respect to how quickly or how slowly, it's a matter of how many pipes we  
12 want to put in. We want to fill it up quickly, and I mean in the order of 6 months  
13 to fill it up, with the idea that the quicker we get the good Lac de Gras water in  
14 there, the better the quality of the water. We can be slower about it but it would  
15 not be as good of water quality in there. So it's just how many pipes and how big.

16 **Kathy Arden:** I would assume also that the water level would come back up because it is being  
17 fed from other places and the spring runoff. I don't think it's going to be affected  
18 that much, it'll just sort of come back on its own, right?

19 **Gord Macdonald:** That's exactly right. It will go down for that period of time but it will  
20 refresh by the spring.

21 **Ed Jones:** I don't think that you will see much of a drop because the water is coming in to  
22 the lake all the time.

23 **Louie Zoe:** So I think that the huge hole in the ground here, the depth of the area is too deep  
24 and I am concerned. So I would like to try one pit at a time, rather than two at a  
25 time, because we might sacrifice something else for what are we going to do for  
26 both pits. I know there are schedules that you have to do this in because there is a  
27 very short summer season.

28 **Joanne Barnaby:** Thank you. Any other comments, recommendations, suggestions,  
29 concerns?

30 **Bobby Algona:** My other concern is you take out all this rock from these pits and you look  
31 at the original bottom of the lake. With all that water going back in to the pits,  
32 how is it going to affect the big lake itself when you fill the pits after removing all  
33 that rock and piling it up on the hill. My biggest concern is how much water is  
34 going to be put in these pits because of how much ore has come out. And the



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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

1 water is going to be used a lot for these pits with how far down the mine is.  
2 Including BHP [Ekati mine] and all the mines around the area itself because I live  
3 in Kugluktuk and our river is becoming really, really low and the water level is  
4 becoming really, really low and we have a brand new shoreline in Kugluktuk. All  
5 that water that goes to Kugluktuk is having an effect on the river itself. We are  
6 having to divert the channels around the river because of the water level in this  
7 river.

8 **Joanne Barnaby:** The calculations that Gord described about how much impact it would  
9 have on the water levels is that the difference would be in centimeters, very small.

10 **Gord Macdonald:** It would go down when you did it but then it would come back up. You  
11 wouldn't see any difference in Kugluktuk other than when we were filling. I  
12 challenge you to be able measure the difference when we are filling.

13 **Joanne Barnaby:** Questions, suggestions?

14 **Dora Migwi:** I listen to everything, everyone's comments that everyone shared. We are doing  
15 things for into the future. I would like to thank everyone one that is sitting here.  
16 The water that's going to be put down into the pit, I don't think there is going to  
17 be any difference. My father had said when the water goes down it won't come  
18 back up again. But once you guys put the water in that open pit and maybe in time  
19 you can keep putting water inside that pit and make it safe for wild animals again.

20 **Phoebe Rabesca:** Before they put water in the open pit, what if they measure the river first.  
21 Then, when they put the water in, re-measure it. Yeah, measure it before and  
22 after.

23 **Joanne Barnaby:** I know there is a general concern about water levels in the north going  
24 down so this would probably add to those overall concerns.

25 **Ed Jones:** The low water levels is right across the territories and its probably due to climate  
26 change, not to mining. Filling a small pit like that would not make much  
27 difference like he said. 10 cm is only 4 inches; we shouldn't be concerned about  
28 that.

29 **Janelle Nitsiza:** No offence to Ed but I think it is a big deal. 10 cm of water over the whole  
30 lake is a big deal.

31 **Ed Jones:** As I was saying that will be replaced, every lake has an inlet, Lac du Sauvage and  
32 Lac de Gras has water coming in from other lakes.

33 **Gord Macdonald:** Its not 10 cm, it's actually 1-2 cm. If that makes a difference to you.

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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

- 1 **Ed Jones:** No, it doesn't, I just wanted to make a point.
- 2 **Janelle Nitsiza:** Okay well I want to make a point, too. Water across the world is very  
3 precious. I think it's more precious than the diamonds that we are digging up  
4 because are you going to drink diamonds when the world runs out of fresh water?  
5 I don't think so.
- 6 **Ed Jones:** Yes, I do, but there is nothing I can do at this point. Not many people listen to me,  
7 you are the only one.
- 8 **Joanne Barnaby:** I think that is an important message that we all need to hear. There is an  
9 issue with water levels across the north and across the world.
- 10 **Natasha Thorpe:** These are issues that are very close to our hearts so I am very grateful for  
11 the passion that I am feeling in the room right now. All of our voices are equal  
12 and we will carry that message into tomorrow as well.
- 13 I know you are all anxious to get out of here but Joanne has the job of trying to  
14 pull together everything that you have shared the last few days into some  
15 recommendations that you can then present to Diavik tomorrow.
- 16 **Louie Zoe:** Just a short speech that the water is going to go in to the open pit and it's not  
17 going to be in time that the water is going raise up to the top of the pit and its  
18 going to rain and snow and everything is going to go on. So in time there will be  
19 water back in the open pit.
- 20 **Joanne Barnaby:** And hopefully it comes back up to normal levels, but the idea of  
21 monitoring that and measuring that, as Phoebe suggested the pre-filling levels of  
22 Lac de Gras and then the measurements after the pits are filled, would be good to  
23 have.
- 24 **Mike Francis:** I just wonder if we put water back into the open pit, maybe half fill it for  
25 now maybe.
- 26 **Gord Macdonald:** Half first then half later? Why?
- 27 **Mike Francis:** Too much water going in at once.
- 28 **Gord Macdonald:** You are saying do it that way so that there is less of an effect on the water  
29 level?
- 30 **Mike Francis:** Yes.

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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

- 1 **Gord Macdonald:** Yes, if that was a big enough concern from everyone then yes, it could be  
2 done like that.
- 3 **Joanne Barnaby:** There was also the concern about leaving it because the groundwater  
4 coming up would be saltier, so that if you only fill it half with water from Lac de  
5 Gras you might not get the pressure that you need to keep the salt water at the  
6 bottom.
- 7 **Kathy Arden:** Just to touch on what Phoebe was saying about measuring before and after, it  
8 would be kind of neat to know the 6 months or maybe the following spring to  
9 measure that again, just see if it went back up to normal.
- 10 **Fred Sangris:** Ed says only Janelle listens, I am listening, too. I'll listen to you. I think Lac de  
11 Gras is a huge lake and there is a large volume of water coming in from Lac du  
12 Sauvage and if you used the amount coming in then it wouldn't affect the lake at  
13 all. If you use too much water then it might have an effect on the spawning up  
14 river, so if you use the volume of what comes in.
- 15 **Gord Macdonald:** Limit the rate to equal the same rate that is coming through the narrows?
- 16 **Fred Sangris:** Yes.
- 17 **Bobby Alguna:** My concern is the volume of water that we have right now. We know  
18 lakes are becoming very low now. Global warming has an effect on this, too. Are  
19 we going to have rain coming down in the future. Looking at it in the future we  
20 are not getting much rain right now that's what I have been really worried about.  
21 Are the natural levels going to come back to Lac de Gras due to climate change as  
22 well? And having that volume going back into the pit was my concern; taking that  
23 little bit along with global warming and not much precipitation over the last few  
24 years, that is my concern.
- 25 **Gord Macdonald:** It is interesting that everyone has commented on the low water levels but  
26 Lac de Gras water levels aren't low this year, or last year. They do go up and  
27 down but they've remained quite constant. But you definitely see it elsewhere in  
28 the NWT.
- 29 **Joanne Barnaby:** All right, are people getting near the end of their rope? One more question.
- 30 **Fred Sangris:** In order for us to make a good decision on the water for the pits, we should try to  
31 find out how much water is going into Lac de Gras. If we have a better idea of all  
32 the streams coming in, we will have a better idea on how it will affect it.

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### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

1 **August Enzoë:** When you started draining the water out of the pits, do you have a record  
2 of how much water was in there before you drained it?

3 **Gord Macdonald:** We do know how much water came out but that's not the same as how  
4 much is going back in, because now we also have the big hole. But we do have an  
5 estimate on how much water it will take to fill up, I just can't remember what the  
6 numbers are though.

7 **August Enzoë:** That lake is big. Like Fred was saying, its running from a big lake up  
8 there, too. Like the concern in Kugluktuk and the water is all going down to them,  
9 lets cross our fingers that the water goes back up again.

10 **Natasha Thorpe:** I am sensing that everyone is starting to fade here. As I started to say,  
11 Joanne and I will be working tonight to try to pull together, you must have 50  
12 pages of notes now to pull together recommendations from those notes, from  
13 these post-its. And tomorrow morning we will go over them, make sure they are  
14 in your words and that we don't miss anything. I want to, in 5 minutes, quickly  
15 read through what I have jotted down. If there is something that comes up where  
16 you think, no you totally got it wrong, let me know. And if you think we've  
17 missed something big time, likewise let me know. Okay?

18 Yesterday we talked about monitoring fish health and lake water in the future and  
19 the key themes that I had recorded is that certainly for 2018 you want to continue  
20 at the current camp site for the AEMP TK program, recognize that funding and  
21 administration of it will be difficult in the future [after the mine closes], science  
22 and TK work together, 2 Elders and 2 youth, monitoring should be done by  
23 Aboriginal people, maybe by Watchers of the Land. Change that you support  
24 testing the water by drinking, but not making tea.

25 **Fred Sangris:** One thing that we can probably use is, we all come from different communities,  
26 maybe there is something we can bring back to the community to show them what  
27 we are doing and they can see the progress we have made. So our community  
28 people have an idea, you were involved, we are helping with the  
29 recommendations, this is how closure is going to work and this is how we are  
30 going to be monitoring. We need to show something to the community so they  
31 know the mines are not being abandoned and you are not walking away. So there  
32 is progress and there are people thinking about the future. And safe guards are  
33 there.

34 **Natasha Thorpe:** Thank you, good point. I know that Diavik is required to, but also  
35 recognizes the importance of going into the communities regularly and talking  
36 about closure planning. But this may be one other way.

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 - Water Monitoring & Fish Habitat

- 1 We have another video from this summer, its 22 minutes.
- 2 We talked more about monitoring water quality on East Island. I have here that  
3 you want to continue monitoring; you know that nature has a way of filtering and  
4 cleaning itself, making longer channels so the land has time to heal the water.  
5 Stock the water with bugs because bugs tell you the water is healthy.
- 6 Reefs and shorelines: currents are really important for spawning success and there  
7 is general support for creating the reef habitats but not clear on how deep, due to  
8 human safety. Possibly come up higher, like an island. The moon? Oxygen is  
9 important and the vegetation that has already grown back should be left and how  
10 that will effect.
- 11 Caribou health and safety on the cliff, so that it is not a solid kilometer long.
- 12 Would like to visit the sewage site.
- 13 Visit the pits to see the shoreline and cliff.
- 14 Better sense of the height of the NCR Pile.
- 15 The responsibility to make sure that all is well or that your minds are at ease: I  
16 heard that you still see that as Diavik's responsibility but that you're wanting to  
17 help and that you see yourselves doing the monitoring today, tomorrow and long  
18 into the future.
- 19 Not only the water quality, but also the water quantity.
- 20 **Kathy Arden:** To touch on the moon part you didn't know, Bobby was talking about how the  
21 moon affects the currents in the water.
- 22 **Ed Jones:** I think you and Natasha both missed something and that's the islands, rather than  
23 shoals and reefs, so that you won't have to worry about safety.
- 24 **Joanne Barnaby:** We got it.
- 25 **Joanne Barnaby:** Yes, we can start at 9am tomorrow morning.

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Friday December 4<sup>th</sup>, 2015**

2 **Dora Migwi:** Opening prayer

3 **Joanne Barnaby:** As we said today we are going to focus on the recommendations for  
4 Diavik. We want to make sure they are clear and everyone is comfortable with  
5 them and in agreement with them.

6 Last night Natasha and I went through all of the notes on the wall and the notes  
7 that Janet has provided us and we came up with a presentation that we will walk  
8 through this morning with you. So the first part of the presentation sets out some  
9 of the main comments, some of the main concerns, some of your insights. As we  
10 go through those, we may decide that one of those, or more of those, need to  
11 become recommendations so keep that in the back of your mind. But let's walk  
12 through that, and then we will walk through the actual recommendations that we  
13 heard and see if there is anything missing in there. And we can go back up and  
14 move things around or change things as we need.

15 **Natasha Thorpe:** Just a reminder that we will have this morning to do this and then Diavik  
16 will be here this afternoon, assuming we are ready to present to them. Also  
17 EMAB, who as you know is the independent monitoring agency for Diavik, asked  
18 if they could come this afternoon so I wanted to confirm with everybody that,  
19 that's okay? They are just going to sit and observe. (Yes)

20 *Presentation – Draft TK Panel Session 8 Recommendations to Diavik (Appendix K)*

21 Observations and Comments FISH

22 Observations and Comments WATER

23 Observations and Comments AEMP TK study (Aquatic Effects Monitoring  
24 Program)

25 **Natasha Thorpe:** Nancy was just asking if she could get a copy of this to take home, if you  
26 would like copies of this to take home we will get them to you.

27 Observations and Comments REEFS or SHOALS

28 Observations and Comments SHORELINE

29 A418 - Cliffs are a concern for animals

30 A154 – Shoreline looks okay

31 Observations and Comments GENERAL

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 AEMP Recommendations

2 **August Enzoë:** Can you go back to the reefs or shoals, it says reefs can shift?

3 **Joanne Barnaby:** I believe that was a comment that Bobby said, that reefs can shift. Did you  
4 want to explain that to August, what you have seen in the past?

5 **Bobby Algona:** The reefs don't shift; it's the water currents around the reefs that shift.

6 **Joanne Barnaby:** Any other concerns, comments?

7 **Mike Francis:** Yeah about the fish. When we are on the water, you can hear the motor  
8 going up to about 400 feet under the water. And the fish would be the same, they  
9 can hear the motor. I don't know about winter, but when you are walking on top  
10 of snow and freeze they can hear you. And then they get up. It should be the same  
11 underwater.

12 **Joanne Barnaby:** Are you concerned about activity on top of the ice disturbing the fish?

13 **Mike Francis:** Yes, because after Christmas, they freeze the top of the ice and when you  
14 are walking on top of the ice they can hear you. Same with the ski doo, they can  
15 hear you.

16 **Natasha Thorpe:** I just had another comment to me that ice can shift or alter the shoreline.

17 **Louie Zoe:** The TK camp where we are doing water study and fish study and there are some  
18 dangers and there are some things happening in our land. And people fall through  
19 the ice and arctic divers or the RCMP bring in a dive team to find the body. And  
20 the ice is sometimes unsafe because of the current. So the mine site happens to be  
21 right on the island and all of the debris that comes off the island goes to the lake.  
22 And 24 hours a day on the ice, the vehicles create a lot of dust and the airplane  
23 landing and taking off. But, none the less, all the dust, the rest goes back to the  
24 land and the rest goes in the lake. I hope that next time we can do some fish study  
25 right around the island, not far away.

26 **Joanne Barnaby:** We have added dust as a concern that should be monitored on the land, in  
27 the water and the air.

28 **Lucas Enzoë:** If there is too much algae it lets you know there is not enough oxygen for the fish.  
29 If it's balanced it's fine, but if there is too much it shows there is something wrong.

30 **Joanne Barnaby:** What about some minimal algae growth? Do we want to have someone  
31 assessing whether it's balanced?

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### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

- 1 **Lucas Enzoë:** Yeah, you can ask someone to check the algae growth annually to see if the  
2 growth is going up or down.
- 3 **Joanne Barnaby:** So once a year.
- 4 On Island recommendations
- 5 **Natasha Thorpe:** There are two different things we are talking about: one is the vegetation  
6 inside the dikes, between the dike and the pit wall, but Bobby was also talking  
7 about the outside of the dikes and fishing in that deep water. I think it would be  
8 good to give Diavik advice on what to do with the outside of the dikes. I am  
9 wondering if you want to be able to set nets in that deep water beside the dike.
- 10 How do people feel about the slopes and such on the outside of the dikes, do we  
11 leave it?
- 12 **August Enzoë:** Yes, it is good.
- 13 **Nancy Kadlun:** Do not disturb it because it was already disturbed before. Leave it alone  
14 now.
- 15 **August Enzoë:** I want to let you guys know a lot of us have never been around that pit.  
16 But I have been around there and I think it is just fine. Leave it alone.
- 17 **Joanne Barnaby:** So we are going to clarify this by making two different recommendations.  
18 One relates to leaving the outside of the dike the way it is. And then inside the  
19 dike leaving the natural vegetation that has grown there in place, and do not  
20 disturb it to encourage ongoing natural re-vegetation.
- 21 REEFS Recommendations
- 22 **Natasha Thorpe:** Are there specific reef depths you would like to suggest? And why? How  
23 deep should those reefs be?
- 24 **August Enzoë;** It's not the reef you are talking about inside of the dike. For me, if you are  
25 going to make a reef it doesn't make sense for me because it is just small. It's  
26 going to be really deep when you fill up that dike, you would have to make a  
27 really high reef. You don't need the reefs, look around the island at the reefs -  
28 what more do you want.
- 29 **Joanne Barnaby:** No we are not talking about putting the reefs in the pits.
- 30 **August Enzoë:** Where are you going to put it?
- 31 **Joanne Barnaby:** Around the edges outside of the pit, but inside of the dike.



## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Joanne Barnaby:** When we put the breaches in the dike it will fill up automatically.  
2 Currently there is the vegetation and we are not going to touch that, but it will be  
3 covered with water once we fill the pits.

4 **Natasha Thorpe:** I really appreciate you asking that question August because this can be  
5 confusing. So DFO explained yesterday the reason to make these finger like reefs  
6 is to create habitat for fish. When the mine was built, they took away fish habitat  
7 so they are required to put fish habitat back to help heal the land. Right now the  
8 recommendation is to build those at different heights or depths below the surface  
9 of the water and I am wondering if you want to be even more specific around how  
10 deep or how high those reefs should be.

11 **Bobby Algona:** Yeah just looking at this picture it distracted me. I thought they were  
12 doing this on the main lake, not inside the dike. That was my concern. I thought  
13 they were doing similar things out on the lake.

14 **Natasha Thorpe:** Yesterday you raised a concern about safety but now that you know they  
15 are inside the pits are you still concerned about safety?

16 **Bobby Algona:** I feel a little differently now I get the real picture. There isn't going to be  
17 much movement. Putting these little reefs inside the pit might promote growth. I  
18 think in my mind if we could leave that whole bottom, that whole natural bottom  
19 that you have there as is and maybe just for reference, just to see. You don't have  
20 to put as many shoals in there. It doesn't have to be as drastic, maybe just one on  
21 each corner.

22 **Colleen English:** I understand your point. Unfortunately DFO requires us to make those  
23 reefs, we have to compensate for the habitat that was lost because of the  
24 construction of the mine. We have pushed back on some of DFO's requirements.  
25 We do have to do this. Its more just a matter of those areas that are green. Most of  
26 A154 especially is pretty done for the fish habitat. These pockets that you see that  
27 are natural, will stay natural. Some of those fingers will still be put there, but there  
28 were all those blue zones, that were on that drawing I showed you, that would  
29 stay natural. Also, most of this is the original bottom of the lake. Anywhere that is  
30 not, we have talked about adding in that till to connect those reefs so that you  
31 have the type of habitat that Fred was talking about with the small gravel that is  
32 better, less sand, less dirt. Unfortunately we cannot do nothing, but hopefully we  
33 can find a middle ground for what you guys are looking for and what we need to  
34 do from a DFO perspective.

35 **Bobby Algona:** Looking at it a little differently now from yesterday, I think not all have to  
36 be real shoals. It might need to be just a couple on either side and if you can make

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1 little islands along the way. Putting an island in there promotes re-vegetating  
2 naturally. The island would be a collection point, for the wind is always blowing  
3 leaves and the ground vegetation no matter how far. The vegetation grows way  
4 into the middle of the lake right from the shoreline creating a middle ground or  
5 from the surrounding areas and the leaves and grasses blowing. I think putting in  
6 a little island is a good idea.

7 **Colleen English:** I have one question. When I look at it from a scientific view, the reefs are  
8 beneficial because they are long and provide a lot of habitat for a fairly small  
9 footprint. For an island you need a lot more material to build up an island, all for a  
10 smaller area for fish to use. One thing I think you need to think about, too, is that  
11 the whole dike structure is kind of like an island, and that's still going to be there.  
12 That is going to be like an island, above the water level and its going to run  
13 almost all the way around. So how much effort do we put into making islands  
14 inside here when we have this dike which, when the pits are flooded again, is kind  
15 of like an island.

16 **Joanne Barnaby:** Is there something we can do on top of the dike to view them like islands,  
17 to encourage the very things that Bobby was talking about?

18 **Ed Jones:** I am a bit confused, are you [Colleen] an independent advisor, or are you  
19 representing Diavik?

20 **Colleen English:** I don't work for Diavik, but I contract to Diavik. Gord pays me to be here  
21 to answer some of these questions.

22 **Ed Jones:** What's your role? A consultant you say, but sometimes you are advising and  
23 sometimes you sound like you are Diavik staff. That's where I am confused.

24 **Colleen English:** I use to be, but I am not Diavik staff anymore. I may say 'we' a lot  
25 because I worked for them for too long!

26 **Ed Jones:** But my question is who are you and what are doing? You are an advisor, yes or  
27 no?

28 **Colleen English:** I am a consultant but I wouldn't call myself an advisor.

29 **Ed Jones:** You confuse me because a lot of the times you sound like Diavik staff. I know  
30 you were with Diavik at one time.

31 **Colleen English:** I haven't been with Diavik for 3½ years. I know it can be confusing.

32 **Kathy Arden:** I think it's because you know so much about the mine and what their plan  
33 is for closure.

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- 1 **Colleen English:** That is part of the reason I am here. I have that knowledge and I've been  
2 involved with it for 10 years when I was with the company. That's why Gord  
3 wanted to keep me involved with this Panel.
- 4 **Kathy Arden:** I wanted to speak on the island but I think Bobby is talking about raising it  
5 more so it's a little warmer for the minnows and such, not so much to make a big  
6 island.
- 7 **Nancy Kadlun:** I was just wondering what about the very bottom of the pit what is there?
- 8 **Colleen English:** Right at the bottom of the pit is the underground mining. They do what's  
9 called open sky mining so that bottom of the pit connects to the underground.  
10 That's where you get into all of those little tunnels. Then it's largely rocks but  
11 some tunnels.
- 12 **August Enzo:** For the future, the Diavik company doesn't know what is going to happen.  
13 They are going to fill it up with water. They should leave it, testing it for a few  
14 years. They might not break it, or they might. So we got two options after they  
15 close the mine. If the water is good, everything is going the way it is.
- 16 **Natasha Thorpe:** One thing about the reefs being above water versus being below water, the  
17 higher you are going to build something the bigger the base has to be. So if you  
18 are building reefs above water you are going to be taking up more of the bottom  
19 with rocks. So would you say half of the reefs should be above water and half  
20 under or maybe just 1 in 10 should be above water?
- 21 **Kathy Arden:** The land around the pit is not exactly flat so when you are putting in the  
22 shoals or reefs I would say use the high points in the land to make a higher reef  
23 and use the low points to make the low ones. Use the layout of the land to plan the  
24 reefs.
- 25 **Bobby Algona:** I did see that for a bit, too, the dike itself as a collection point for the  
26 natural wind-blown material from the land itself. I do agree. I see it now. You  
27 don't really have to have an island now. I keep thinking about the main lake itself,  
28 putting an island there, and I keep getting distracted. If you have to put those  
29 shoals and reefs, it doesn't really matter how deep they are, as long as you can see  
30 the shoreline. If you put some reefs out in the natural lake sometimes you see  
31 them, and some you don't. Some of those natural reefs are out in a larger area. In  
32 a small area, like in the dike, there is not going to be much movement. The space  
33 in between the ice and the shoal itself has a lot of movement and it will be more  
34 pronounced versus how thick the ice gets in the winter time.

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- 1 **Joanne Barnaby:** I just wanted to check my assumptions with Colleen. Right now what we  
2 see around the pit, am I correct in saying what we see around the pit is old lake  
3 bottom?
- 4 **Colleen English:** Yes, the only thing is they have added some rock in there to build up some  
5 of those base areas for reefs.
- 6 **Joanne Barnaby:** We are actually going to be covering natural old lake bottom with water.
- 7 **Louie Zoe:** Flooding the open pit with the amount of water has been taken out. The  
8 vegetation that has already grown back on the dry land and once the water is back  
9 to normal, up to lake level, they are going to kill all the vegetation that's on the  
10 dry land. I don't know if the dry plant will come back to life.
- 11 **Joanne Barnaby:** So perhaps the concern that we are going to be killing the new vegetation  
12 on the old lake bottom. Maybe there is something to consider moving some of the  
13 bottom on to the tops of the dikes.
- 14 **Bobby Algona:** Just another observation, seeing the dike right now its sort of a slow  
15 accumulation place for the snow. I am wondering when all that snow has  
16 accumulated on there, and looking at it right now, that dike is there it is going to  
17 be a collection place for snow. It's going to be much deeper in that pit and it will  
18 be insulation for the water inside the dike. If the snow starts to accumulate inside  
19 the dike, the ice won't be as thick as it is out on the main lake where the ice is  
20 going to be thicker. It doesn't really matter how deep the shoals are; when you  
21 have less or more snow in one area, you have more or less insulation so the ice  
22 will vary.
- 23 **Natasha Thorpe:** Am I hearing that it doesn't matter if some of them come above the water?
- 24 **Bobby Algona:** Yes, I think being inside that dike is going to be less movement, just like  
25 in small bays. It will be breached in some corners. There will still be a little  
26 movement, depending on how deep the dike is going to be breached.
- 27 You are creating a little river channel now, when you breach these dikes, a little  
28 channel in these dikes, it's something to look at as well.
- 29 **Joanne Barnaby:** So new currents are being created through the breaches.
- 30 **Natasha Thorpe:** So maybe over break think about inside of the dike. I am hearing you  
31 don't want any islands inside the dike.
- 32 *Break*

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- 1 **Ed Jones:** I believe the area within the dike walls is too small in comparison to the lake to  
2 put shoals, reefs in there.
- 3 **Kathy Arden:** I wanted to speak to the existing vegetation that's around the pit. Those  
4 plants are meant to grow on the land, so when we flood that area those plants are  
5 definitely going to die. Now they are growing there because of the rich silt from  
6 the bottom of the lake but it is also going to help sustain and grow new water  
7 plants and food for the fish. So removing it now and putting it up on the dike or  
8 something to try and build plant life on the dike I think is not a good idea. We are  
9 destroying something that is already there that's meant to be in water. I think  
10 on the dike itself plant life will come back from, you know, the seedlings that will  
11 be flying around through the wind. I think we should just let the plants be and get  
12 flooded and use that as part of the re-growth for the fish.
- 13 **Joanne Barnaby:** Ed just to remember Diavik has no choice; they are required by the  
14 Government of Canada to build the reefs around the pits.
- 15 **Ed Jones:** Joanne when you say around the dike do you mean inside or outside.
- 16 **Joanne Barnaby:** Inside the dike, outside the pit.
- 17 **Nancy Kadlun:** I won't be concerned about putting the reefs in as long as it's not harmful  
18 for any living animal.
- 19 **Natasha Thorpe:** It sounds to me that maybe we should get rid of 21-ensure built reefs have  
20 a portion above and below water and 23-put sand and gravel on top of built reefs.
- 21 **Mary Louise Black:** No body wants to disturb the land that is there and that is already re-  
22 growing but then there is the area that isn't and maybe to build the reefs there.
- 23 **Natasha Thorpe:** So the idea is don't disturb new growth and build on something that is  
24 already disturbed.
- 25 Show of hands to cut 21 and 23-Yes.
- 26 Change 22
- 27 I have a general question about the area inside the dikes. Do people want to fish  
28 inside that area, long into the future? Should we building for that? Do you want to  
29 set nets in there sometime, or would you set them out side of the dike?
- 30 **August Enzo:** For that place around there, once the mine is gone? We know how to set  
31 nets. We are working for the future.

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- 1 **Natasha Thorpe:** Anybody else have a question?
- 2 **Nancy Kadlun:** We don't usually put fish nets in really deep parts so we don't have to  
3 worry about that.
- 4 **Kathy Arden:** I was, forgive me if I am wrong, but I thought we were building this as a  
5 spawning area for the fish so they can go out to the big lake later, where we would  
6 fish. Putting nets on the outside of the dike was a really good place for the bigger  
7 fish. You wouldn't want to eat fish that is spawning so I am sure that when the  
8 fish go there they will be able to find the exit so that we can catch them in the net.
- 9 **Joanne Barnaby:** Its one of the questions that we have, do we design this for spawning, do  
10 we design it for feeding, resting or rearing because each is a little different. Which  
11 should it be designed for?
- 12 **Ed Jones:** Joanne I think we will let the fish decide that.
- 13 **Natasha Thorpe:** There is feeding, spawning, rearing and resting so of these different types  
14 of habitat, the fisheries biologists would make slight changes depending on which  
15 of those 4 you wanted to build for. Is there any guidance you can give Diavik or  
16 the fisheries biologist based on what you want to see? I hear that we don't want to  
17 build to set nets inside the dike but how can we plan for feeding, spawning,  
18 rearing and resting?
- 19 **August Enzo:** I have been working for government for many years and they want us.  
20 They are sitting in the office a lot of them and they have never been on the land.  
21 They might change their mind if they go on the land.
- 22 **Colleen English:** A good point August. I just want to add a little bit to what Natasha was  
23 saying about how we want to design the habitat. We also need to think about what  
24 is going to be there when we are saying that. So Bobby I think you and Fred were  
25 talking yesterday that big fish need the currents for spawning, they like to put  
26 eggs on the rocks with some current. So this area is going to be pretty closed, so  
27 we need to think about the limitations that exist because of the structure [dike]  
28 that will be there.
- 29 **Bobby Algona:** If we were going to think about re-vegetating and having a spawning area,  
30 I am thinking to myself again that these little breaches will create some movement  
31 because most part of that lake on both sides. If we are going to think about re-  
32 vegetating fish habitat to be moving, the lake itself will be moving either way.  
33 Maybe if we were to breach one of the areas a little bigger so we could get some  
34 more movement because of the sediments we need to come in from the lake.

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- 1 **Joanne Barnaby:** Do we know if there was spawning around the island before the mine was  
2 build?
- 3 **Colleen English:** Not for certain. There were rocks and islands that were probably used, but  
4 we don't have a definitive answer.
- 5 **Natasha Thorpe:** The location and size of the breaches are non-negotiable right?
- 6 **Colleen English:** Location yes, size I don't know. I am waiting to hear back from Gord.
- 7 **Joanne Barnaby:** So let's go back to our recommendations and continue going through  
8 them, we may need to come back to these ideas after we have time to get more  
9 information or when we think about it more.
- 10 **Colleen English:** It looks like maybe you and fishers disagree. Yes they could be bigger but  
11 it would increase the currents, something that goes against the fisheries  
12 objectives.
- 13 **Joanne Barnaby:** So DFO wants this area on the inside of the dike to be designed for rearing  
14 fish, not for spawning fish. Are you okay with that?
- 15 **August Enzoë:** Yes, for now.
- 16 **Kathy Arden:** We don't know if they spawned in that area before anyway.
- 17 **Nancy Kadlun:** What he said earlier, we don't decide for the fish.
- 18 **August Enzoë:** The two pits that are open now on the north side, after they fill it up and  
19 they test it, they should break it at the top and the bottom only, to make a stream  
20 across the pit.
- 21 **Joanne Barnaby:** So Lucas and August have proposed where the breaches should be located  
22 and what they want to achieve with those locations is a stream running south and  
23 north through both pits.
- 24 **Lucas Enzoë:** I am proposing that if you fill up the two pit with water, then make a breach on  
25 the north side and south side of the pits, and put the breaches to use the natural  
26 currents already there. (i.e. north of the big pit A154, south of the small pit A418  
27 and a connector in between the two pits.)
- 28 **Mary Louise Black:** Why don't you want breaches on the side?
- 29 **Lucas Enzoë:** No breaks along the side because it would disrupt the natural flow.

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- 1 **Joanne Barnaby:** So that objective is to keep the current strong? So keeping the current  
2 strong by limiting the breaches along the side.
- 3 How do other people feel about the idea?
- 4 **August Enzoe:** We are talking for the future so it sounds good.
- 5 **Joanne Barnaby:** August and Lucas, is this something we want Diavik to consider as an  
6 option and ask them for feedback on what issues they see with it so we can  
7 consider it as an option?
- 8 **Lucas Enzoe:** Absolutely.
- 9 **Joanne Barnaby:** Alright so this will give us another option to consider.
- 10 **August Enzoe:** Is fisheries going to come back today? It would be good if they did.
- 11 **Natasha Thorpe:** It might be possible, we can certainly ask, you never know what their  
12 schedule is like.
- 13 If I were to add this in observations and comments: general that we have a  
14 proposed solution for consideration or research to breach the dikes at the north  
15 end of A154 between the two pits A154 and A418 and at the south end of A418 to  
16 support strong current running through. Why do we want a strong current running  
17 through the pits?
- 18 **Lucas Enzoe:** It will make like a river from the north to the south and the fish will sense the  
19 current. They will think it's the perfect place for spawning. It's like a tiny lake,  
20 and around the edges its shallow and you could make reefs so it could be like a  
21 fish habitat. And at the same time you can keep all of the outside vegetation that  
22 is growing.
- 23 **Natasha Thorpe:** So you are thinking that you would only flood the pits and not the  
24 surrounding vegetation?
- 25 **Bobby Algona:** We want so much to re-vegetate these dikes, we want natural growth to go  
26 back in there. Creating these currents inside these dikes would be something that  
27 the big lake itself has all of these natural sediments and we want parts of that  
28 lake to be moving and all the sediments and anything that is coming off of the big  
29 lake. It would encourage the natural sediments from the lake to go into the pits.  
30 We want the growth to go back in there so I think in my mind these breaches are  
31 going to bring back the natural growth and sediments from the bottom of the lake.  
32 The natural windblown leaves branches is something to think about as well.



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- 1 **Natasha Thorpe:** So Bobby I added encourage the natural sediments of the lake to come  
2 back into the pits. Is everybody okay with the way this is written or added? Would  
3 we like this as a proposed solution, or an option to consider?
- 4 Our artist has given us a diagram, is that what you were thinking August and  
5 Lucas?
- 6 **Kathy Arden:** So the red is the vegetation and blue is the water? So what happened to the  
7 Fisheries idea of rearing and resting, it's gone? So it's going to be a big deep hole  
8 of water? It will be like a big river, no spawning, no resting, no nothing?
- 9 **Lucas Enzo:** It will be like a big river and it will be up to the fish if they want to spawn. Think  
10 about the part between the two pits as where the fish may spawn.
- 11 **Joanne Barnaby:** My question to Diavik given Fisheries requirements is this an option that  
12 you can actually consider?
- 13 **Colleen English:** This small area in between the pits is likely not enough so it will be a  
14 challenge from a fisheries perspective. And then there is also A21 we need to  
15 think about it in the same manner. Ask Gord to look at it later today.
- 16 SHORELINE Recommendations
- 17 **August Enzo:** Is that shoreline only inside the pit or around the island? Just the shoreline  
18 inside the pits.
- 19 **Natasha Thorpe:** We are not talking about outside, we are talking about the shorelines of the  
20 pits. Then the ramps, we need some closure on that one.
- 21 **Joanne Barnaby:** We want a recommendation on keeping that road way, which acts as a  
22 ramp.
- 23 **August Enzo:** The first pit is okay around the shoreline, the second one with the cliff  
24 down to the lake is the one we are worrying about now.
- 25 **Natasha Thorpe:** Does the TK Panel support the two recommendations? One on leaving the  
26 shoreline on the pit A154, the bigger pit? Yes.
- 27 **Kathy Arden:** On 27, break up the 1km cliff on pit A418 with slopes because its too long for  
28 caribou. Wasn't it that it was dangerous, not that it was too long?
- 29 **Joanne Barnaby:** Break up the 1km cliff with slopes (poses a danger for caribou)

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- 1 **Joanne Barnaby:** Natasha has added number 28. Leave current roads leading into the pit so  
2 they would act as ramps that animals can climb out if need to. Are people okay  
3 with that?
- 4 **Louie Zoe:** Discussed a lot of issues for recommendations, things that we are discussing  
5 today and maybe next visit to the mine in spring. We need to take a look at some  
6 of the areas and maybe we don't try to re-vegetate and let it naturally go. The  
7 mine people, they hear the people from the TK and I hope they take our  
8 recommendations seriously.
- 9 **Joanne Barnaby:** We did have a recommendation that the TK Panel visit the areas again in  
10 the spring or summer so that we can see it again.
- 11 **Mike Francis:** How are they going to put the water in the hole?
- 12 **Colleen English:** With siphons and pumps into the pit.
- 13 **Joanne Barnaby:** They are using pumps because they want to get the water in there fast and  
14 test it over a period of time before they open it.
- 15 **Mike Francis:** If you use a channel, fish are going to fall in and then they starve, but the  
16 pump is good.
- 17 **Colleen English:** There are screens on the pumps so the fish don't get sucked in.
- 18 **Joanne Barnaby:** Diavik wants to monitor for 7 years, TK Panel wants longer. So #28 is  
19 looking at how to do that. See what the options are and explore funding options,  
20 using a portion of the bond if possible.
- 21 Re-seed land and use dirt and human waste to facilitate re-growth.
- 22 **Natasha Thorpe:** We had a written recommendation from yesterday that this take place and  
23 I would like to take a few moments to talk about this idea. I don't think that we  
24 got closure on the whole concept of using human waste on site. This showed up  
25 on one of the maps, one group did recommend this.
- 26 **Bobby Algona:** Re-seed land and use dirt and human waste to facilitate re-growth. How  
27 are we going to do that as the human waste has already been chemically  
28 stabilized? I wonder how many chemicals are being used to treat the waste?
- 29 **Colleen English:** I am not 100% sure of all the chemicals that are used to treat the waste but  
30 I know the purpose of the treatment is to make the end produce stable, safe. It is  
31 stored on site in the environment anyway. It will stay on site even if it's not used  
32 as a fertilizer. But I will get back to you on the chemicals they use.

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- 1 **Natasha Thorpe:** If the waste doesn't get put back in areas where people have identified  
2 where they want vegetation to re-grow, where would it go?
- 3 **Colleen English:** There are two places where it is stored and it would just stay where it was  
4 and then some may be buried in the rock pile.
- 5 **Natasha Thorpe:** If you don't use the waste for areas of re-vegetation then would you have  
6 to truck fertilizer up from down south?
- 7 **Nancy Kadlun:** As long as it is un-harmful, make sure its checked and everything because  
8 its human waste, and we also have so much chemicals going into the same area.
- 9 **Mary Louise Black:** I think that all the waste should be used if it is treated, and if it's there they  
10 don't have to bring anything in and if it would promote growth I think that is a  
11 good thing.
- 12 **Bobby Algona:** In my mind we are not only getting the fallout from the mines we are also  
13 getting it from the trucking companies that are coming up and are bringing lots up  
14 with them. They bring a lot of mud and everything under the wheels and we are  
15 having a lot of things come up from these trucking companies and when it falls, it  
16 falls out on the road. What they are bringing up from the south as well and all the  
17 containers is coming up from the south and these crates and we're having to see  
18 all these bugs as well and replanting themselves out on the tundra that we don't  
19 know about. Down along the arctic coast we never had grasshoppers before, now  
20 we have thousands of them. It's because of the crates and ships that come up.  
21 Some of these freighters that are coming from all parts of the world we have long  
22 known that these cruise ships are bringing all kinds of bugs and sediments up to  
23 us.
- 24 **Natasha Thorpe:** Okay so do we have some final direction about using waste as fertilizer?  
25 Can I have a show of hands? Yes, all are good.
- 26 We forgot to ask this morning if there is a volunteer to present these  
27 recommendations to Gord this afternoon.
- 28 **Joanne Barnaby:** We still have more to review after lunch but we really do need to think  
29 about a presenter. Perhaps the 4 youth could team up and present the  
30 recommendations to Diavik? Yes, okay good.
- 31 Okay I guess we don't have any further recommendations.
- 32 **Natasha Thorpe:** Gord has preliminary results for the slimes. He wants to know if you want  
33 him to present preliminary information, or wait until next time and have a better

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1 presentation with all the information and maybe one of the researchers to present  
2 and answer questions.

3 **Bobby Algona:** It is good if we could have it next time, but maybe give us a little bit to  
4 think about this time, too.

5 **Natasha Thorpe:** I am super excited of what you have pulled together so I just want to say  
6 that I am going to put on the video again over lunch because we have Chloe here.  
7 She was one of the youth from the AEMP TK camp this past summer.

8 *Lunch Break*

9 *Presentation – Recommendations for Diavik*

10 Janelle, Mary and Ethan as the youth of the Panel are presenting to Diavik

11 Observations and Comments: FISH

12 Observations and Comments: WATER

13 Observations and Comments: AEMP

14 Observations and Comments: REEFS OR SHOALS

15 Observations and Comments: SHORELINES

16 Observations and Comments: GENERAL

17 AEMP Recommendations

18 On Island Recommendations

19 Reefs Recommendations

20 Shoreline Recommendations

21 General Recommendations

22 Questions for Diavik

23 Questions addressed by Diavik

24 **Joanne Barnaby:** Thank you to the youth. John McCullum has arrived from EMAB.

25 **Gord Macdonald:** Thank you, youth, for your presentation. I don't know why they keep  
26 bullying you to make the presentation, you should push back sometimes, but you  
27 did very well, thank you.

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1           On the pressure ridges, is it something we should be looking at? Is there an intent  
2           with that or is it just an observation?

3 **Bobby Algona:**       It is an observation from something that has been around for many, many  
4           years and they are caused by the weather and as you know the weather has  
5           fluctuations all season long. Winter time you have long spells of really warm  
6           weather in the fall and this creates pressure ridges in the lakes, the warmer the  
7           winter the more pressure ridges you have. The colder weather may not bring any  
8           pressure ridges. The moon effect and the sun and the rotation has an effect on  
9           weather and this causes fluctuations on weather, and the warm spells and the cold  
10          spells and how this affects in our season. The long warm weather is what causes  
11          the pressure ridges and the spells is not thickening the ice, maybe a week or two  
12          weeks because the ice is not thickening.

13 **Natasha Thorpe:**    Pressure ridges being important in terms of oxygen and open water and  
14          fish, and that being why fish were attracted to those areas.

15 **Gord Macdonald:**    But I am not sure there is anything we could do to create one. It's an  
16          observation, and I agree, I just don't think there is anything we can do.

17 **Nancy Kadlun:**       How many pressure ridges do you see in Lac de Gras?

18 **Gord Macdonald:**    Bobby would probably know more, he has snowmobiled on that lake way  
19          more than me.

20 **Bobby Algona:**       Like I said before, the longer warm weather in the winter time creates  
21          more pressure ridges on the lakes. The longer colder spell in the winter time will  
22          not create pressure ridges. In my mind to create something like a pressure ridge I  
23          think another recommendation that I am coming up with again is to make an  
24          example if we want something to look like a pressure ridge maybe make holes on  
25          the ice inside the dike where the ice is to make it look like a pressure ridge. Every  
26          time you make a hole in the ice fish are going to be looking for that oxygen.

27 **Gord Macdonald:**    I think you could do that initially to try and attract fish in the area but you  
28          wouldn't want to go back every year to do it.

29 **Natasha Thorpe:**    I think, Gord, all of these observations and comments are understandings  
30          that are grounded in TK and part of your challenge is to see and track how those  
31          ultimately flow into operations or planning.

32 **Gord Macdonald:**    Yeah, I was just curious what that was.

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 I like the animals drinking from the pit as an indicator, that's a good one that we  
2 could build into that monitoring of the pit before we breach it.

3 This one [north-south stream across the pits] makes it sound like all of this would  
4 have to be at a lower elevation than the lake. The only way to stop it from  
5 flooding into the shores, you can't do that and have the water at the same  
6 elevation. I like the idea but I just don't know how. Physics isn't helping you in  
7 this one.

8 What I understand Lucas is that you are suggesting to only flood the pits and not  
9 flood the edges, and leave a hole here [north] and here [between A154 and A418]  
10 and here [south] so the water could flow through and gradually add sediments and  
11 natural materials into the lake. But the problem is that the edge here [pit] would  
12 be 30-40 feet lower than the lake. If you put a hole in here [dike] you are going to  
13 fill the area all the way up to the lake level. You couldn't do it as a breach. You  
14 could control it with pipes but then you wouldn't get the currents going through  
15 there.

16 Why can't you do the same thing but with flooding the vegetation?

17 **August Enzoë:** That's because we don't want the water to spoil the vegetation that is  
18 growing now.

19 **Gord Macdonald:** I see.

20 **Mary Louise Black:** Another thing we had in there was flooding the whole inside and having  
21 the breaches where you said. I think one of the things we spoke about was where  
22 the reefs would go, and they didn't want to ruin the natural vegetation because it  
23 was originally the bottom of the water; so just using where you had already  
24 developed the land and poured the rock for reefs.

25 **Gord Macdonald:** That's exactly what we were thinking. We don't want to put any reefs  
26 where there is already natural lake bottom and, in fact, now vegetation. So we  
27 wanted to put it in areas, like up here, where we have intentionally put rock. But I  
28 think it would be hard not to flood it all.

29 **Ed Jones:** Gordie what I want to suggest is this. Instead of opening the north or east side of  
30 the pit walls, pump the water in there to the level that you want and leave it there  
31 and don't open the walls at all.

32 **Gord Macdonald:** Yeah we could do that. And then introduce fish in there, or just leave it?

33 **Ed Jones:** Leave it. Until such time that it's been tested and is suitable for fish habitat.

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### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Gord Macdonald:** Yes, that is exactly what we are doing.

2 For the TK Camp, I understand why you want it to stay but it is really difficult  
3 legally to own a camp and allow anybody to use it. We could sell it, give it away,  
4 but it would be difficult for us to hold on to it and take all the legal responsibility  
5 that comes with it. But I understand the intent. And why destroy it if it is of use to  
6 someone.

7 I am interested in the why of number 7 of AEMP Recommendations. Why are  
8 you interested in sampling there [the Narrows]? We sample water from there so  
9 we understand what's coming from our competitor's property to protect our  
10 interests, but why would you guys be interested in monitoring those fish?

11 **August Enzoe:** That is for the future because when they start working up there we want to  
12 be able to test the fish. For the future.

13 **Gord Macdonald:** That's something we should be recommending to Dominion, not to  
14 Diavik?

15 **Natasha Thorpe:** In LDS or LDG?

16 **August Enzoe:** Both sides, and in the narrows, because that is where the fish are going to  
17 go through.

18 **Gord Macdonald:** In the narrows is a very unique fish habitat. It seems more of something to  
19 understand the effects from J [pipe] then to help understand the effects from  
20 closure or operations at Diavik. Not that it isn't a good idea, but we might not  
21 want to do it if it seems to have other reasons.

22 Number nine is exactly what Ed was saying but being very specific, we should  
23 seek the approval of the Panel before doing that. I think that is a nice  
24 recommendation.

25 I am glad you picked up on 10. We think that is the most important for water  
26 quality as well.

27 11 and I think 22 seem to be about building some sort of wetland treatment or  
28 natural treatment particularly for the PKC to try and naturally clean the water. I  
29 have never thought of mosses, it's a good one as well; moss is on our list of things  
30 to research. I think it is one we need to bring forward. I wish I knew what the  
31 industry filtering system was.

32 **Kathy Arden:** Leave it the way it is when you flood it. The land plants are going to die  
33 but water plants are going to grow.

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### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Gord Macdonald:** 24 seems to be the main question that we all have to get at. I think if we  
2 put our minds to it we could design a fish habitat for any one or all of those fish  
3 habitat types, maybe the bigger question is what habitat types do we want in there.  
4 We had excluded spawning because we wanted to replace habitat that is in short  
5 supply in LDG, which is rearing and feeding and resting.

6 I like 26, the importance of us walking that in the field before and after we've  
7 created that habitat to see what the bottom of the lake looks like.

8 29 is an interesting one that we need to look at, and if you could be clear on this  
9 recommendation. If we are using 2030, which is what we are saying right now for  
10 when we think we will be done monitoring, whether there should be some sort of  
11 trust fund for ongoing monitoring is what I understand you are saying.

12 30 is very appropriate. I am just trying to get money as we speak to do that. So we  
13 have had a large group of scientists working on those test piles and it's done with  
14 3 different Universities and they are interested in continuing the program and  
15 instrumenting the main pile.

16 **Joanne Barnaby:** Can you give us an idea when you are looking at long term monitoring the  
17 NCRP for stability of the frozen state. What kind of time frame do you have in  
18 mind? For monitoring?

19 **Gord Macdonald:** Same as everything else, 2030. If things all go as planned it would be  
20 2030. If not, it could be longer. It's hard because it depends what we see.

21 **Joanne Barnaby:** That gives us a framework.

22 **Gord Macdonald:** The scenarios we look at now are 100 years because it's hard enough for  
23 100 years.

24 There is a key word in 33 I'm taking and that is 'safe', the key word for all. We  
25 want it to be safe as well and we will have to demonstrate to you why we think it  
26 is safe.

27 Thank you very much.

28 **Joanne Barnaby:** Any questions or comments from the Panel?

29 **August Enzo:** Do you agree with most for now?

30 **Gord Macdonald:** I don't think I disagree with anything. I agree to most. There are some  
31 very solid recommendations in there and things that I have never even thought of,  
32 like introducing bugs are a good one. And hearing that you view that healthy



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1 environment at a bug level is the same place where science goes, so that is very  
2 useful.

3 **Joanne Barnaby:** Further thoughts. Everybody is good.

4 **Gord Macdonald:** Questions for Diavik number 1 is a really hard one. It can't get to that  
5 point, we have to have monitoring and control systems in place way before  
6 Kugluktuk. That's why we are monitoring on the island right now. The first test  
7 is, is it acceptable in the water right next to LDG because once it gets there its too  
8 late. I don't think we can even think of that. We have to have monitoring and  
9 controls in place at the island. It just can't get to there, because it's too late once it  
10 gets there. The most we could do once that happened would be to compensate,  
11 financially compensate Kugluktuk, which is not going to solve anything. It might  
12 help but it is not going to solve anything and it's certainly not where we want to  
13 go.

14 **Bobby Algona:** We have always had this ongoing thought in there that what if all the  
15 contaminants start to flow to Kugluktuk as well. We are not just looking at  
16 Diavik, we are looking at the other mines as well. Even though they are all related  
17 and are diamond mines, what if something else comes in. Where are we going to  
18 move Kugluktuk if ever this was going to happen, how would we present this to  
19 the community?

20 **Gord Macdonald:** Number 2 is what we have to do this year, making an inventory as to what  
21 is actually down there. Nothing really in the pits, it's the underground. So making  
22 an inventory of what is underground and what do we think has to come out and  
23 what do we think we can leave in there. That is what we think would be the start  
24 of the discussions with yourselves and with regulators; is our list okay so we can  
25 start planning. We won't be the first ones who have done it. Dominion has  
26 flooded an underground, they left stuff behind, don't know what it was but there  
27 is some precedent, Snap Lake might be doing the same inventory right now.

28 Number 3 we do know how many streams and rivers flow into LDG and about  
29 how much water comes with each of those but I can't tell you off the top of my  
30 head. I can certainly get the information for you.

31 **Nancy Kadlun:** I am concerned about the rock pile here but once everything settles what  
32 will happen then. The earth is very strong and can break man-made things no  
33 matter how good and thick. We are worried about this from spring and rain, it's  
34 still going to contaminate the areas.

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1 **Gord Macdonald:** That long term settlement and moving is a valid concern and we share  
2 those concerns.

3 **Natasha Thorpe:** That's it in terms of questions for Diavik. Does anyone have any general  
4 comments, thoughts, concerns? Gord do you have any more questions.

5 **Gord Macdonald:** Thank you again for your time and effort.

6 **Natasha Thorpe:** I am going to walk through the changes, then we are going to go on to  
7 planning for 2016.

8 **Kathy Arden:** We had put in that one comment about testing fish in LDS and LDG. It might  
9 serve as a warning bell for the other diamond mine. I don't know what the  
10 communication is like between the two mines, but if they pulled a fish from there  
11 that was slightly contaminated with something they could say to Dominion, we  
12 have pulled this contaminated fish from the narrows and obviously the flow is  
13 coming from J-pipe. So I was thinking of that as more of an alarm bell.

14 **Natasha Thorpe:** I forgot this last suggested change in number 27. There was a suggestion  
15 to change the part in brackets so that it reads, break up the 1 km cliff on pit A418  
16 with slopes to make it safe for caribou.

17 *Presentation – TK Panel Process: Next Steps (Appendix L)*

18 **Colleen English:** The next update for Diavik's closure plan is due at the end of 2016. That is  
19 going to include a number of the suggestions from the last few Panel sessions so  
20 we would like to have the time to include any changes that might come up in the  
21 August session.

22 Diavik prefers to have the summer session in August so they have time to change  
23 the closure plan if need be.

24 **Natasha Thorpe:** In April or May for the wildlife monitoring there would likely still be  
25 snow and ice so wouldn't it be harder to have a look at the shoreline and or the  
26 sewage treatment pile.

27 **Colleen English:** Yes, in April there would still be snow and ice but mid to end of May the  
28 snow would be melting. So if we did it mid to late May. The sewage piles, the one  
29 that is on top of the till pile is pretty exposed to wind so it doesn't get a tonne of  
30 snow on it and there is always fresh stuff being added.

31 **Kathy Arden:** We had mentioned earlier for water testing to happen in May and June when  
32 water runoff is at it's highest.

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- 1 **Colleen English:** Around May long weekend is probably the best to see the water flowing  
2 and moving around the site. Freshet is usually the very start of June, end of May.
- 3 **Kathy Arden:** It's been very warm now so it's possible it may be early.
- 4 **Colleen English:** Yes, that is true. One of the reasons April was in there was because the  
5 northern migration can be happening then. But it is touch and go, and it's a really  
6 fast migration, as you well know, so it's really just the luck of the draw.
- 7 **Bobby Algona:** As an Elder out on the land for most of my life and my observations of  
8 caribou, the way the caribou migrate either way they are coming. North it's  
9 always the cows and calves that come first and the bulls always come later. It's  
10 always the same way going south. The cows are always making a trail for the  
11 bulls. Sometimes late March can be when the caribou come through. Working in  
12 Ekati late fall there was no caribou coming through those areas this year. The  
13 usual migration route comes through I am wondering if Diavik can keep the  
14 communities posted on when the caribou are coming through the mine.
- 15 **Joanne Barnaby:** Any other comments regarding timing of the sessions and the location of  
16 the sessions. Is there a preference for April, May or June. Do you prefer April,  
17 May or June?
- 18 **Bobby Algona:** I like the idea of what Kathy said, May or June, when the water is flowing  
19 at site. We are monitoring water a lot in our sessions so we want to look at the  
20 water. I am in agreement for that.
- 21 **Joanne Barnaby:** So you would want that session at site then.
- 22 **August Enzo:** Plan a visit for after snow when everything is melting.
- 23 **Mary Louise Black:** I think this was for wildlife monitoring. I went to Ekati in June and there  
24 were lots of caribou, so I think June.
- 25 **August Enzo:** Caribou is not like before, there would be a lot and in years coming now  
26 you probably won't see caribou there. In the spring time you are lucky if seeing  
27 them at Ekati.
- 28 **Louie Zoe:** I guess during the spring runoff is the time to go. Maybe early in spring as long as  
29 the eggs are hatching and the leaves are turning up and maybe the end of June  
30 when the leaves are coming out. The hunting season closes about that time.
- 31 **Joanne Barnaby:** We have had some consensus to look at June.  
32 For the second session, August was suggested. Is that okay or not?

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- 1 **Natasha Thorpe:** Also would you like it on site or in YK. So we will be there in May or  
2 June but the suggestion is to have the next one in Yellowknife, but we'd like your  
3 feedback. The discussion at that proposed session would be closure plan, the  
4 updates that they are working on now and reviewing that before it goes for  
5 licensing.
- 6 **Joanne Barnaby:** In terms of the stage of revision, I am wondering if delaying that August  
7 to the fall might give us a disadvantage affecting any change to the plan.
- 8 **Colleen English:** The August date was suggest because it gives Diavik enough time to have  
9 the report ready to share with you, but also take anything back that would come  
10 from the Panel and still incorporate that before we would be submitting it in  
11 December.
- 12 **Natasha Thorpe:** If we end up with the session in June, August might be a little close.
- 13 **Bobby Algona:** I am thinking about the youth. Some youth are going to school early  
14 August so we may want to think about that.  
15 In Kugluktuk some kids start in early August.
- 16 **Nancy Kadlun:** Taking youth out of school for a week is not a problem. I have my son  
17 here who is in grade 10 and I talked to the principal. This makes them stronger,  
18 even one little trip like this can help the youth for a long, long time. They feel  
19 stronger and do more in school. You can still pull them out of school because  
20 these trips make them stronger and help them want to stay in school.
- 21 **Natasha Thorpe:** That's a good point Nancy. Some of it Colleen might depend on what's  
22 going on at the Diavik site as well, or as long as we are early we can book it.
- 23 **Colleen English:** Weekends, Travel Thursday and then come home on Monday. The best  
24 time is still weekends at the mine site.
- 25 **Natasha Thorpe:** Do you want to be at the mine in August/September or in YK?
- 26 **August Enzo:** At site because you see the land. I look at it, if I see it with my eyes.
- 27 **Natasha Thorpe:** That's what we have heard all week, seeing with my own eyes. One last  
28 question. We talked a lot about how we could have ensured more youth come out  
29 to the camp, 1 youth from each group, and there was suppose to be an alternate in  
30 case they got sick or something. In the end we only had 3 youth come and I am  
31 thrilled we have 4 youth for this session. But planning into the future I am  
32 wondering if the Panel would be open to the idea that we always try to have 5  
33 youth, or the designated number of youth. So if, for example, one group's youth

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1 aren't available at the last minute, then the youth from another group could come.  
2 That we just keep moving down the list. It doesn't matter which group the youth  
3 are from, it's more important to have the youth here. I am putting it out to the  
4 Panel as a suggestion.

5 **August Enzoë:** It sounds good for the youth, they learn a lot from us to sitting with them  
6 in the meetings like this. You should think about the future of your youth.  
7 Depends on the money but we need to think of the youth.

8 **Natasha Thorpe:** To clarify, the youth right now are selected by your groups and for those  
9 that weren't here Monday and Tuesday when we talked about the Aquatic Effects  
10 Monitoring Program, there was a lot of discussion around the Elders getting  
11 involved with your schools, trying to encourage as much participation as possible.

12 **Bobby Algona:** I've touched a little bit on this earlier, sometimes the schools ask me to  
13 come and do a session at the school and as an Elder I certainly do. There are  
14 going to be more white folk coming to these parts so learn the language so you  
15 can be a part of it. I was pretty intimidated in the beginning. Everything my dad  
16 taught out on the land made it really easy for me to teach my children out on the  
17 land. If only I could get my health back I would be there. I am not going to go  
18 there with my health the way it is. So with the youth, having the youth around our  
19 Panel here is really nice to have.

20 **Joanne Barnaby:** I would encourage the youth that are here to tell your groups that sent you,  
21 tell them how you feel about being here, if you want to continue participation  
22 make sure that they hear that from you and they hear it from the Elders as well.

23 **Colleen English:** Just another logistical thing for when we hold meetings at the site, the  
24 youth have to be 18 years or older.

25 **August Enzoë:** I want the youth to say something about how they feel right now.

26 **Lucas Enzoë:** I feel that I have been enlightened by my grandpa and the western science and the  
27 importance. There are not a lot of people in the communities and some don't want  
28 to be involved. Our Elders won't be here long enough to keep this going. So I  
29 think it's important.

30 **Mary Louise Black:** I really enjoy doing all of this, I don't have a lot of knowledge or answers  
31 or info or anything like that and I don't say much, but I am observing and I am  
32 taking it all in. I like listening to Elders from all over. I am taking it in and I like  
33 this kind of stuff, it's where I plan to be hopefully, environmental monitoring.

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1 **Janelle Nitsiza:** I am very grateful for the opportunity to be here. Learning about all this  
2 stuff is interesting and taking in culture everywhere and coming together is really  
3 amazing for me because we do have so many similarities and I think our duty as  
4 youth is to train to be an Elder one day. That is something that my grandmother  
5 engraved in me. One day you might be a grandma so what kind of stories are you  
6 going to give your grandchildren, are you going to give them bad stories or give  
7 them stories where you sat around the table and you learned from your Elders or  
8 learned stories. When I make decisions in life I normally have my grandmother on  
9 my shoulder saying are you doing the right thing or the bad thing.

10 I hang out with the young people and the Elders. Anytime I have gone to a  
11 meeting I have told the youth what I learned so that one day they can, too. We are  
12 Elders in training.

13 **Ethan Kadlun:** I feel pretty happy that I participated in this meeting because this is my  
14 first meeting. I have learned a lot even if I didn't talk much. I listened to the  
15 Elders talk a lot.

16 **Joanne Barnaby:** Before we break I just want to give you a chance to ask John McCullum  
17 any questions. Do you want to make a few comments John?

18 **John McCullum:** First thank you very much for letting me sitting in on your meeting. I have  
19 really enjoyed it so far and I can tell you our Board met just in the last few days.  
20 Part of the reason I am here is they are asking what is happening with the Panel.  
21 They really appreciate your work and the attempt that Diavik is making to hear  
22 what this TK Panel says and incorporate it in to closure. Our job is to be a watch  
23 dog and so the way the Board is looking at this is to see what kind of questions  
24 are you answering , are they the right questions, what do you think about what  
25 Diavik is doing with the information.

26 Great opportunity, great to meet you folks and to see your deliberations. Glad to  
27 be here. We are talking about maybe next time that you guys meet, trying to  
28 coordinate a Board meeting around the same time, so that maybe there is some  
29 overlap where our Board can actually come and talk with you, and you with them.

30 **Joanne Barnaby:** Question or comments for John, messages to their Board.

31 **Nancy Kadlun:** Thank you for what you said. We are always willing to go if we are  
32 invited because we learn a lot and we want to continue to have our air and water  
33 clean for our future. No matter if its 100 years, there will always be people here.

34 **Joanne Barnaby:** Thank you, Nancy. Anyone else.

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1 **Joanne Barnaby:** People are ready for a break and then we will have a final round table for  
2 your final comments for today.

3 *Break*

4 **Joanne Barnaby:** We would like to give you the opportunity to share anything that you wish  
5 to and we have as usual your evaluation forms for you to fill out.

6 **August Enzo:** What have we been doing since that time I was sitting on this Panel, the  
7 way it sounds like, is it is getting more input now in the last two years. We did all  
8 the information what should be done for when the mine closes. It sounds really  
9 good with how it will be done. What we are doing right now I hope the  
10 government will tell us we did a good job. We did a good job and getting the  
11 youth involved is really good.

12 **Mary Louise Black:** In the last three days I learned a lot, a lot of insight to what's happening, a  
13 lot of things I wasn't aware of. I think its good you are taking our  
14 recommendations and keeping us up to date.

15 **Louie Zoe:** The thing is its going to be very memorable in a way because a lot of the things  
16 we have done over the year. I didn't participate in activities there are some  
17 differences in the communities and I hope I will be able to participate in future  
18 activities. None the less we have a lot of Elders in the community and I hope to  
19 continue to participate but none the less I will encourage the Elders and the youth  
20 to participate.

21 **Janelle Nitsiza:** I learned a lot in the last 3 days. I remember in 2013 when we went to  
22 Diavik I think I made the recommendations to add the female Elders because  
23 there had to be a balance male and female, they both play such important rolls. I  
24 think that should go along with the youth, too. We can learn our rolls as men and  
25 women from the Elders. I really do see, I feel like Diavik could be a model for  
26 other diamond mines when it comes to closure because they are incorporating the  
27 TK and the science side.

28 **Dora Migwi:** Yes its quite a learning experience for me, too because it's quite a cross cultural  
29 experience. I do always listen to my Elders and respect them for that they are our  
30 main leaders. Today the youth are looking at us as leaders now and the possibility  
31 and we still carry the same notion of safety and preserving our land, despite losing  
32 Elders every year we are still here to help you. It's always good to have the  
33 majority of Elders, more ladies and more youth.

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1 **Mike Francis:** Thank you for everything everybody, we had a good meeting. The baking  
2 it was good and we have people that come from a long ways, plane, truck  
3 everything. God bless you guys, thank you.

4 **Ethan Kadlun:** As I said before I am happy to be here, I am happy to a participant of this  
5 TK Panel, this is a great way of bringing Elders and youth together.

6 **Nancy Kadlun:** I am happy about being on the TK Panel, hearing Elders since I was young  
7 child they were always saying without the water one day the earth will burn  
8 because there will be no more water. There are so many people, some people,  
9 some day before there were scientists before we had TV and news there was no  
10 radio and they always said one day there will be no water left and we have to try  
11 and protect it any way we can. I am so happy I am part of these meetings, it's  
12 really helped me to come to these meetings.

13 **Bobby Algona:** The other day, when was it again, Janelle said it all for me and my people:  
14 water is really precious, not so much the diamonds, water is more precious then  
15 diamonds. No matter who it is, people are suffering all over the world because of  
16 water. I touched a little on this in the past, we cannot go without our water and  
17 our air; two most important ingredients, what we need the most. We cannot find  
18 another way to make our water so we have to keep it as clean as we can. Climate  
19 change is all around us. We can't get around whatever comes from that. We  
20 cannot only depend on land based animals we have to depend on water animals as  
21 well. For me my grandmothers stories were the most important, I traveled  
22 everywhere with my dad on his trap line.

23 I asked my dad many thousands of questions and my father never turned me  
24 away. Unlike some of the people I have heard before they said those things to me,  
25 you're important, you're my future, it made me appreciate how I interact with my  
26 family and be out on the land. Some of you might know I have an outpost camp  
27 on Pellet Lake which I grew up on for many years. I couldn't just leave it out  
28 there. I have been really blessed with the help of my Elders along the way.

29 I will use it in the future. I am going to be an Elder some day from my dad living  
30 out on the land really helped me to learn. I could never be doing this without him  
31 and their wonderful answers. I have come to learn a lot over the years through  
32 generation to generation. I have become an Elder and I try to do the things my  
33 father did for me and any questions my children pose to me I try to answer the  
34 best that I can.

35 **Ed Jones:** I am happy with most of the recommendations to Diavik. I have learned a lot this  
36 session and thank you for contributing their knowledge.



## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

1 **Kathy Arden:**I have found it a real pleasure working with all of you the last few days and in  
2 listening to everyone speaking it awakened old memories of me being a child  
3 going out on the land with my parents, things I had forgotten about when you get  
4 involved in the modern world. So to be asked to come sit on this Panel with you  
5 and share our ideas and recommendations to close the mine that has scarred  
6 mother earth is a pleasure to work with you to help in that healing process. Thank  
7 you very much.

8 **Joanne Barnaby:** I wanted to tell you that it was a long week for some of you. It was a very  
9 long week and I really appreciate your commitment, your energy and insights. I  
10 am always amazed and this time in particular I was impressed the insights that  
11 you shared and the ideas that you brought forward and the honesty that you  
12 brought and your commitment to taking care of the land and your struggles to  
13 understand the mining process and the closure process and the science that we  
14 hear about and to come to terms with how you can bring your knowledge to this  
15 and make a positive change. Your patience and willingness to ask questions is  
16 fantastic. *Mahsi.*

17 **Kathy Arden:**I think on behalf of us we would like to thank our facilitators who have done a  
18 beautiful job getting us through this session. A big thank you to Joanne Barnaby,  
19 Natasha. I know you have worked late at night to put things together for us to  
20 review the next day and I am sure you are as tired as we are. Thank you John for  
21 coming.

22 **Natasha Thorpe:** I think Joanne said everything I was going to say. I want to echo my  
23 appreciation. Thank you for making the journey, the 3 and 5 days that you were  
24 here. The idea of this continuity and back and forth between youth and Elders and  
25 TK and science and as we continue in this TK Panel; we continue to respect one  
26 another, respect the land, the process and your passion and your stories are at the  
27 core of that. I think that the fact that we see such continuity in the faces around  
28 the table, honestly in an Indigenous setting as well as a non-Aboriginal setting, for  
29 this many years to have so many of the same faces is really, really exciting and it  
30 makes it much easier for this Panel to be effective because you've got the history.

31 I am also grateful that we have more women on the Panel now and I really hope  
32 that you are here and there is that continuity with you as well. I think we have a  
33 wonderful strong group. Likewise with the youth, you bring something to the  
34 table here that is really magical and a passion from the others.

## Appendix D

### Diavik Diamond Mines TK Panel Session #8 – Water Monitoring & Fish Habitat

- 1 **Lucas Enzoë:** My reflection for the last 3 days shows me how all these things are very important  
2 in all that we do. I am grateful that I took the time to participate and come to the  
3 TK Panel. I didn't think that I would enjoy it but I did and it feels good to be here.
- 4 **Natasha Thorpe:** It's hard to compete with all the things in your life.
- 5 **Colleen English:** I just want to say thank you to all who have been here all week. I really  
6 appreciate your patience and I was saying to Gord earlier today I feel like when I  
7 talk to this Panel, I feel like you know more about the site then some people that  
8 work there.
- 9 I think that the new additions are great. Thank you to everyone and I look forward  
10 to our next session.
- 11 **Berna Martin:** I would just like to thank every one of you until we meet in the New Year,  
12 thinking about your wellness, of your health and happiness and everyone have a  
13 good Christmas Holiday.
- 14 **James Rabesca:** I have been involved for many years and of course the Dene nation and the  
15 reason why they built it and as well as I did interpreter. I have been with them  
16 since day one so but now I am not involved in politics so I just interpret and I  
17 think I worked well and I enjoyed it. Thank you.
- 18 **August Enzoë:** Closing prayer

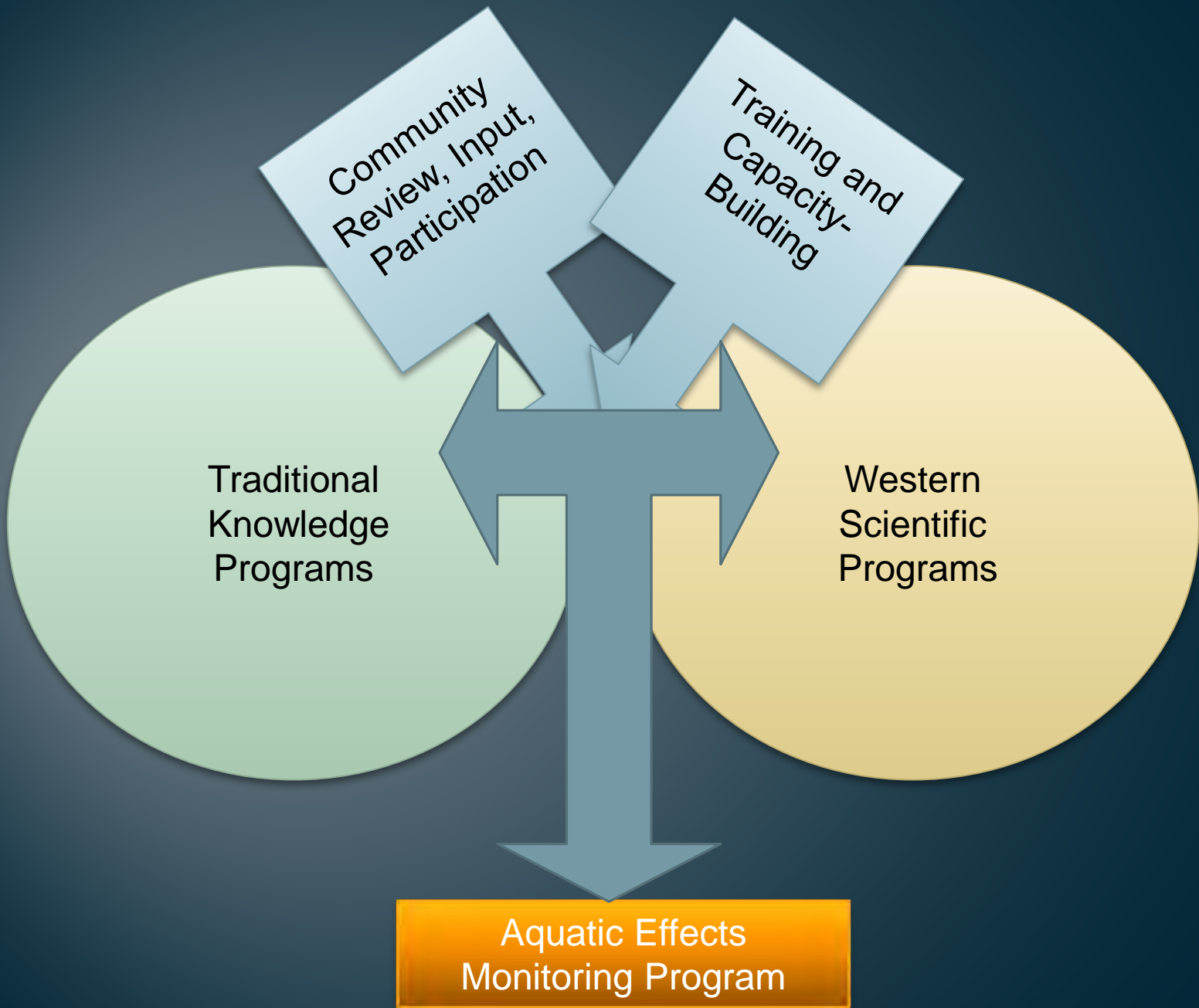
## **Appendix E**

### **Post Camp Presentation**

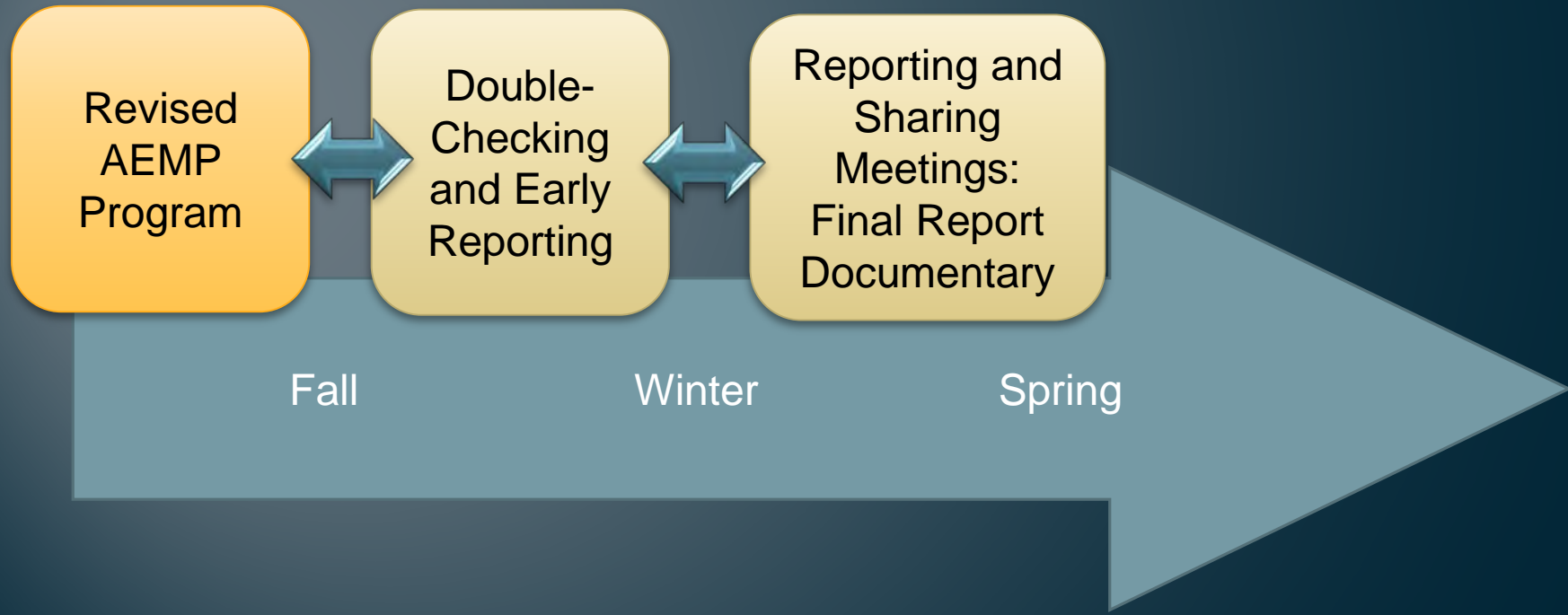


# Diavik Diamond Mine Aquatic Effects Monitoring Program: Report Update (2015)

November, 2015



# Outcomes of 2015 AEMP





# Report Over-view





**Introduction**  
**Approach and Methods**  
**Observations, Learnings,**  
**Outcomes**  
**Recommendations**



# Observations...



# Fish



# Water



# Fish Palatability Study Questions

- 1) this fish tastes excellent for eating and looks better than fish we usually catch;
- 2) this fish tastes good for eating and looks similar to fish we usually catch;
- 3) this fish tastes okay for eating but does not look as good as fish we usually catch;
- 4) this fish does not look good for eating and looks much worse than fish we usually catch; and
- 5) we would not eat this fish.

# Recommendations from 2015



## **Appendix F**

### **Closure Overview Presentation**

# Diavik Diamond Mines

**Diavik Closure Planning Overview**  
**TK/IQ Panel – December 2015**





# Closure Planning

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## **Content**

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Closure Plan – How we got here

---

Water and Fish – the focus for TK Panel Session 8

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---

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# 1998 Pre-feasibility



400 0 400

# Closure Goals

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

# Overview of Closure Plan by Area

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# North Country Rock Pile

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# PKC

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# North Inlet

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# Infrastructure





# Open Pits & Underground

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# Fish Habitat Design & Water Quality

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## **Appendix G**

### **Response to Session #7 Recommendations Presentation**

# Diavik Diamond Mines

**Diavik Response to TK Panel Session 7 Recommendations  
TK/IQ Panel – December 2015**



# Response to Session 7 – Plants & Re-vegetation

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## **Supported**

- Further discussion on caribou deterrent methods & tools for animals approach East Island (7.3, 7.8)
- Caribou/wildlife ramp across the rock pile with smooth boulders at the bottom (7.5)
- Protecting natural vegetation left on the mine site, except where beneficial for wildlife safety (7.1)
- Study vegetation north and east of the island (7.2)
- Test plants for toxicity (7.4)
- Slopes on side of the road similar to test pile (7.9)
- Use nature's quote to guide plant selection (7.11)
- Vegetation map produced by Panel to be used for further discussions with communities and Panel (7.15)
- Use old maps of migration routes to determine best travel corridors (7.16)
- Rock pile slopes similar to test piles (7.9)
- Literature review on TK of plants for LDG region (7.13)
- TK Panel informally share results with elders in their community (7.19)
- 1 female and 1 male on Panel; youth participation (7.20, 7.21)
- Sharing results of the Panel with government and other industries (7.22)

# Response to Session 7 – Plants & Re-vegetation

---

## Modify

- Fine crush rock, similar to the airstrip, on passage and road ways (7.6, 7.9)
  - Positive feedback from Panel on rock on the side of the test pile; suggest this is the appropriate material to use
- Create a barrier between the (NC) rock pile and the PKC (7.7)
  - Natural rock dump may not be good enough to prevent caribou movement between the two areas; need to investigate options how best to do this
- Womens session on vegetation (7.17)
  - Preference is to incorporate women into every program/meeting, along with men and youth, and using break out sessions to share information, rather than holding women-specific programs
- TK Panel to meet 2 times per year (7.18)
  - Committed to the Panel; number not as important as having the right information to share and the right topics/timing to apply to the closure plan

## Response to Session 7 – Plants & Re-vegetation

---

### **Unsupported**

- Use tundra mats to re-vegetate areas (7.10)
  - 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.
- Not using treated human sewage as fertilizer (7.12)
  - Diavik is interested in using treated human sewage waste as fertilizer for the first couple of years of reclamation, given that it is available on site and considered safe to use from a health perspective.

## **Appendix H**

### **TK Panel Water Quality Presentation**



# Diavik Diamond Mines

**Post-Closure Water Management and Quality Monitoring  
TK Panel Discussion – December 2015**



# Post-closure Water Management and Quality Monitoring

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## Content

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What does Diavik do now to monitor water quality?

---

- AEMP & SNP Overview
- 

What will the different areas of site look like at closure?

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- Drainage patterns and holding areas
  - What does Diavik plan to monitor?
- 

Key Questions for the Panel

# What do we do now? AEMP



# What do we do now? SNP



## 2014 SNP Station Locations

- Surface Runoff Stations
- PKC Wells
- Active Groundwater Station
- Biweekly from Underground
- 6 day\_Monthly Effluent
- Monthly Diffuser
- Collection Ponds
- Annual Treated Sewage
- Quarterly PKC

Diavik Diamond Mines

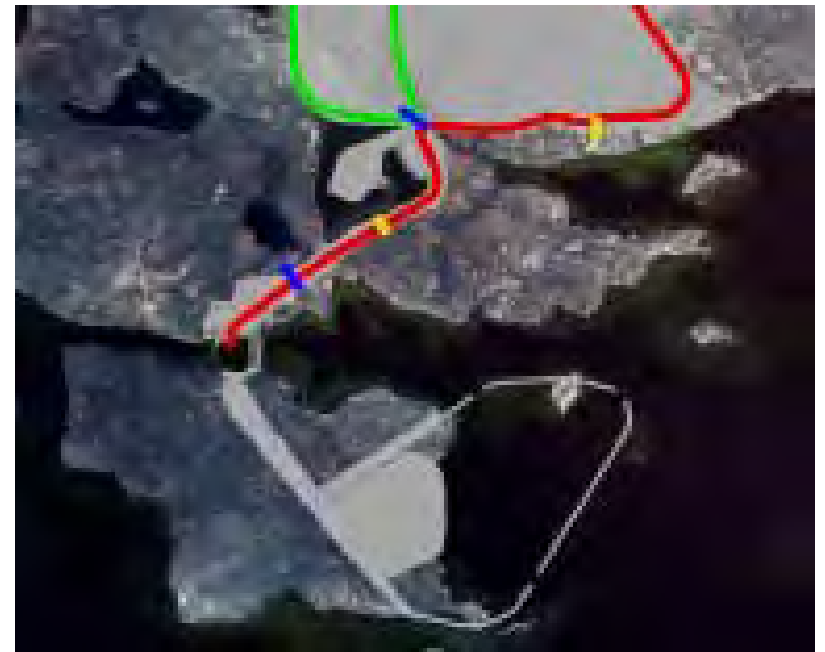
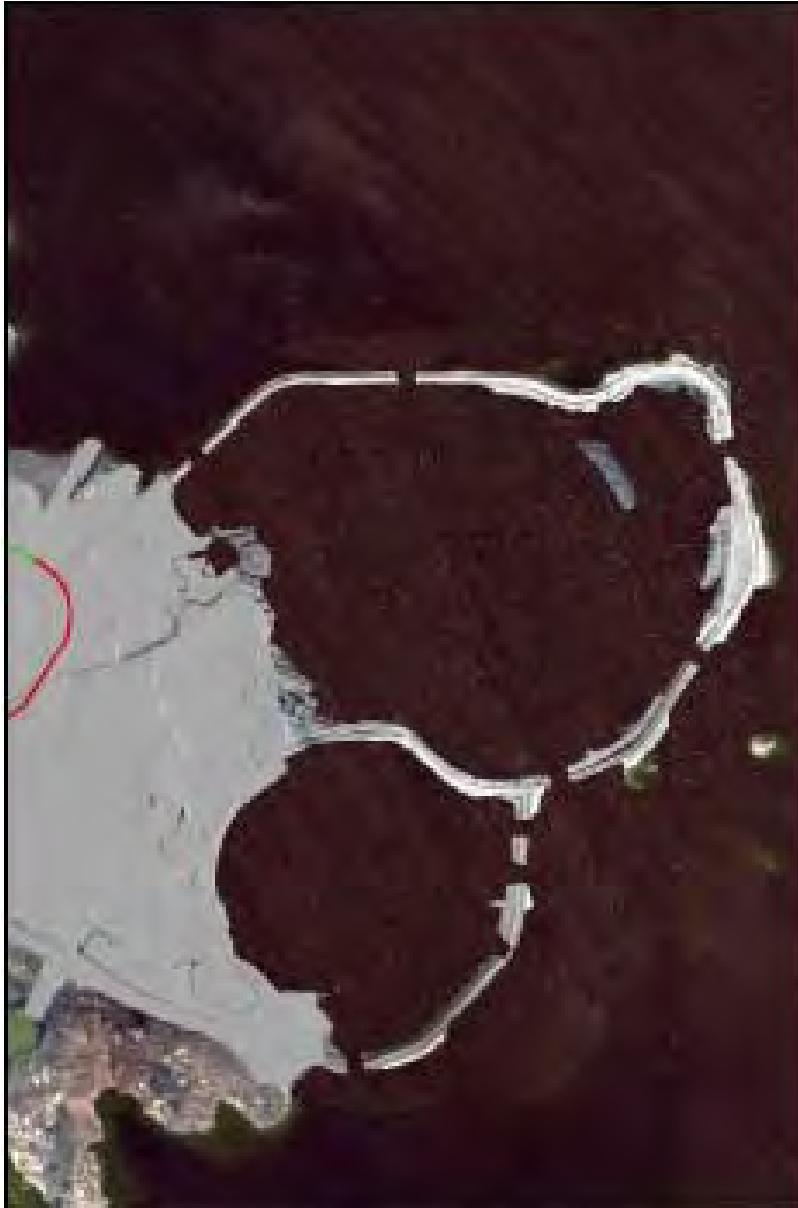
# What will it look like at closure? Mine Site

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# What will it look like at closure?

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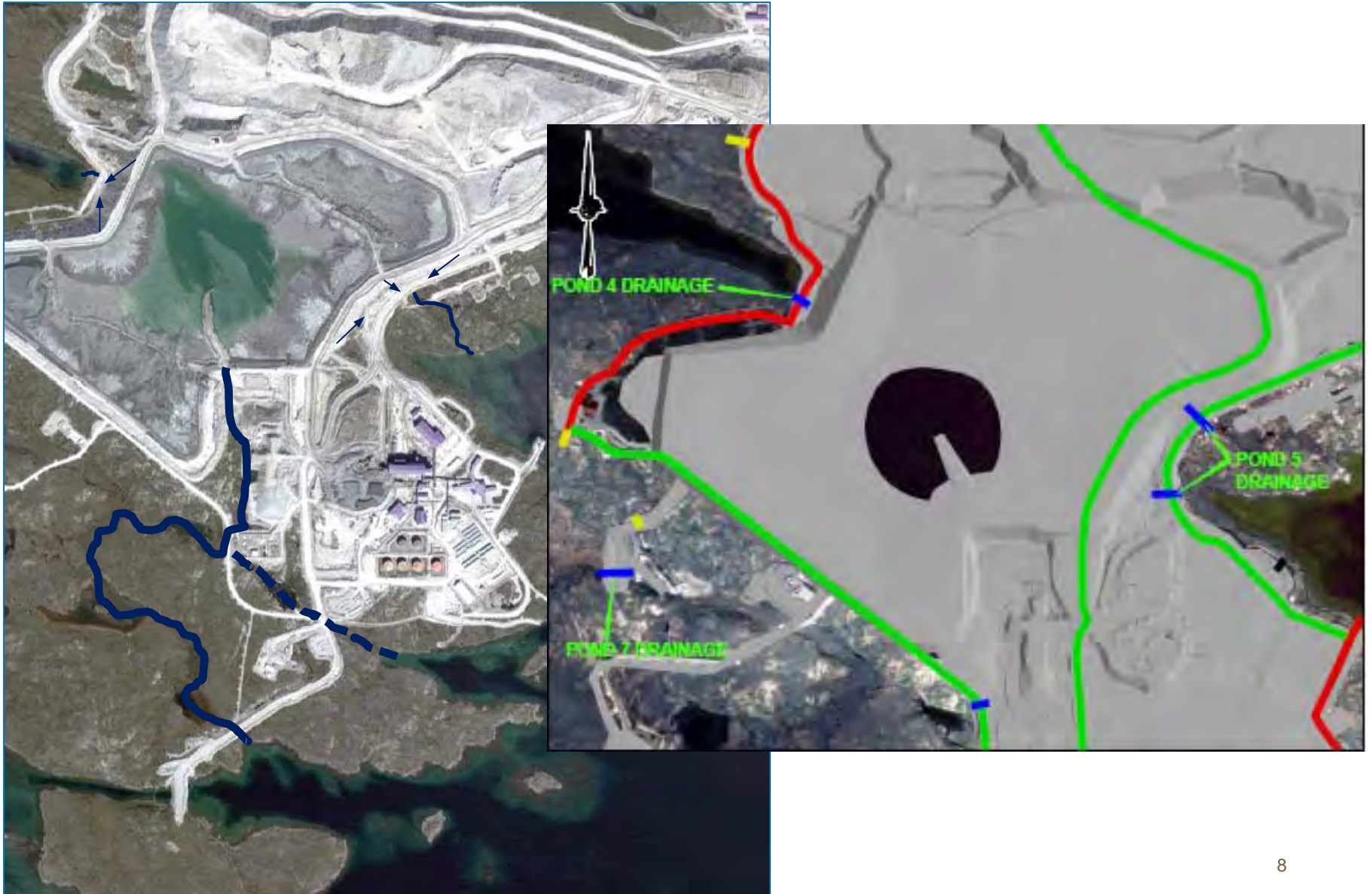


# What will it look like at closure? NCRP



# What will it look like at closure? PKC

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# What will it look like at closure? North Inlet

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## Closure WQ – Requested Input from TK Panel

1. What areas would you want to sample, and why? (e.g. migration routes, caribou crossings, ponds, etc.)
2. Would you want to do any type of TK monitoring of WQ on the island?
3. Are there features that would help clean/heal water draining from the land?

## **Appendix I**

### **TK Panel Fish Habitat Presentation**

# Diavik Diamond Mines

**Open Pit Closure - Fish Habitat & Shoreline Construction  
TK Panel Discussion – December 2015**



# Open Pit Closure and Fish Habitat Construction

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## Content

---

What do the open pits look like now?

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- A154 & A418
- 

What did the open pits look like before?

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- A154 & A418
- 

What will the open pits look like at closure?

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Reef Building – what does it look like so far?

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Key Questions for the Panel

# A154 & A418 – What do they look like now?

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# A154 & A418 – What did they used to look like?

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## A154 & A418 – What did they used to look like?

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## A154 & A418 – What did they used to look like?

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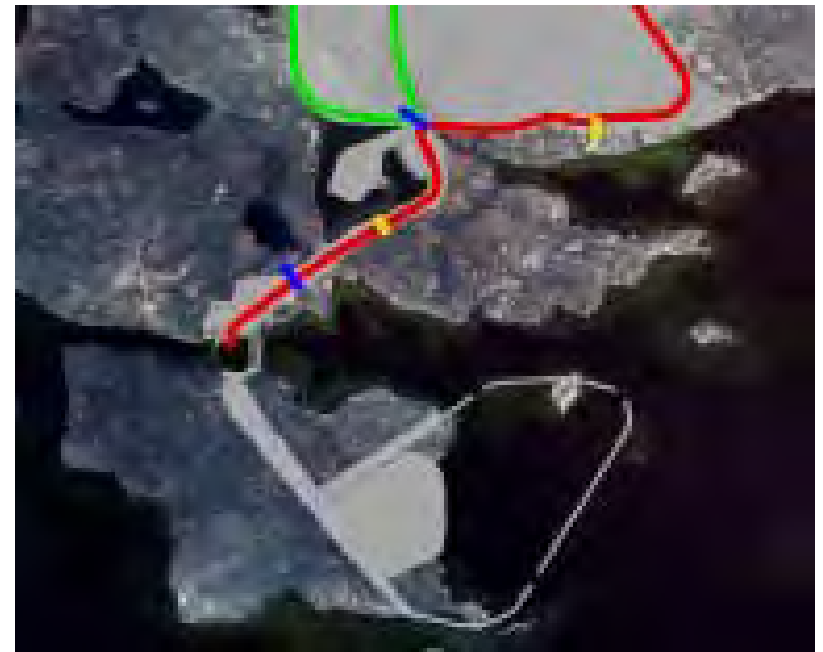
# A154 & A418 – What did they used to look like?

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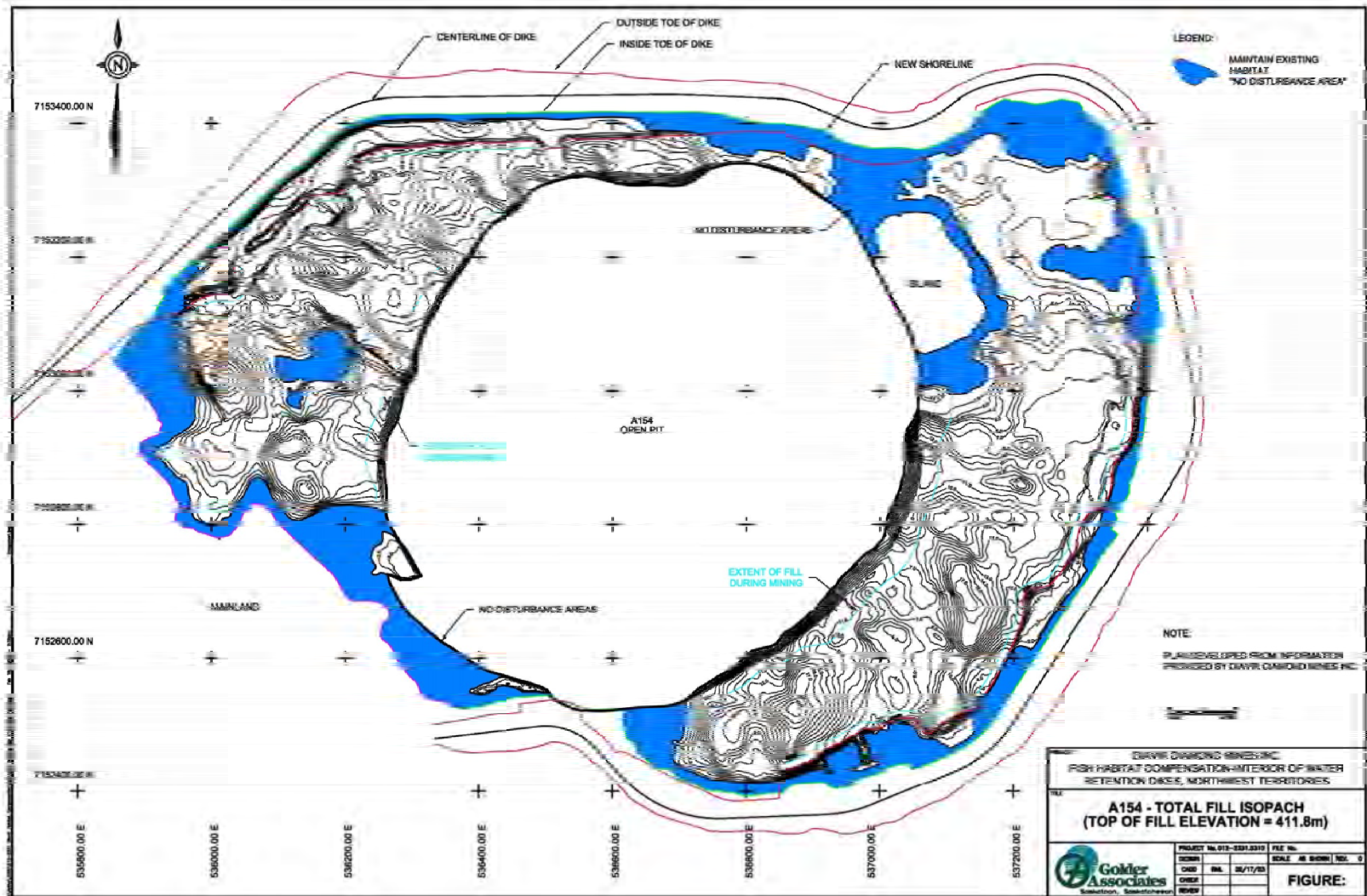


# What will the open pits look like at closure?

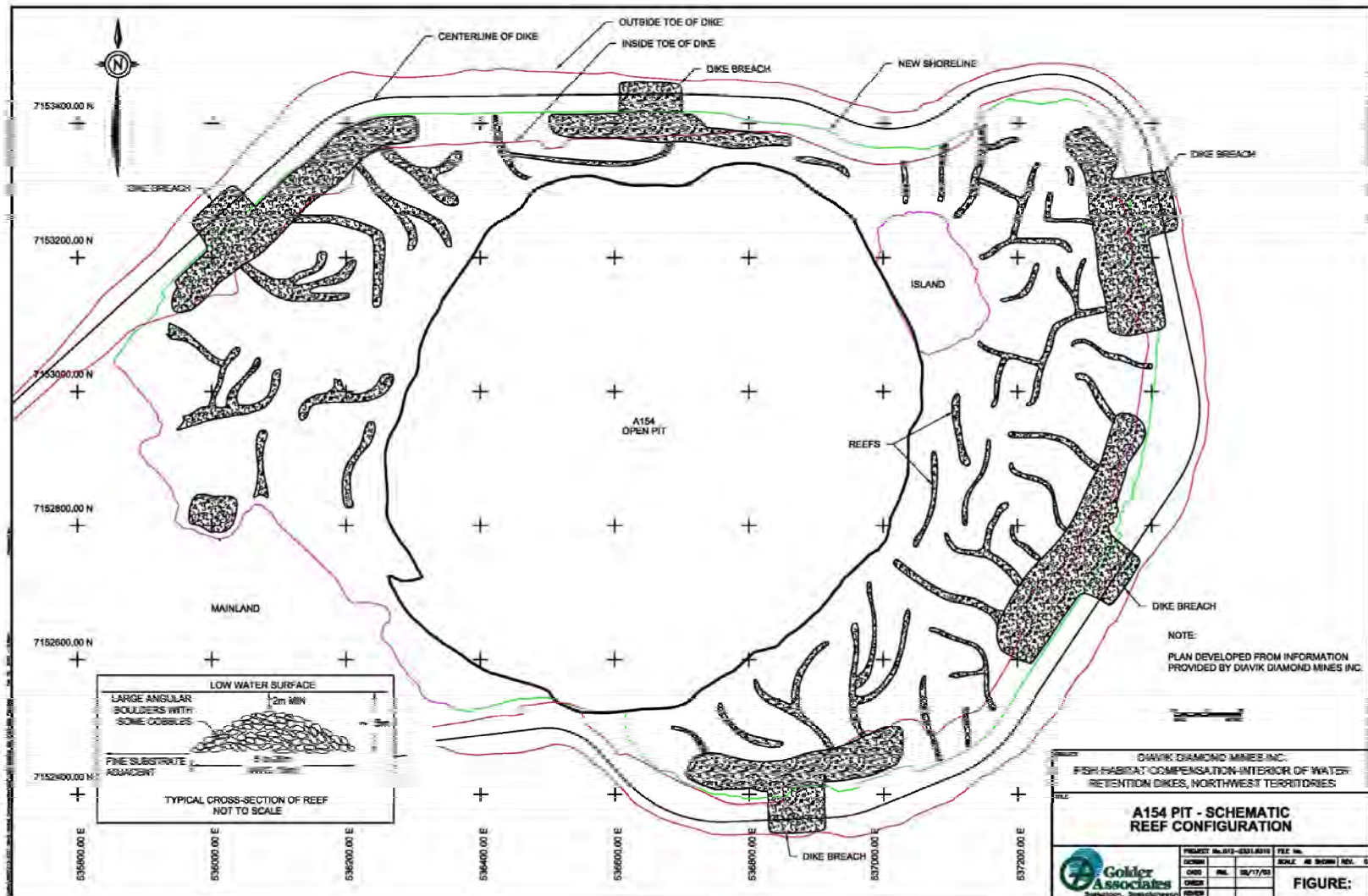
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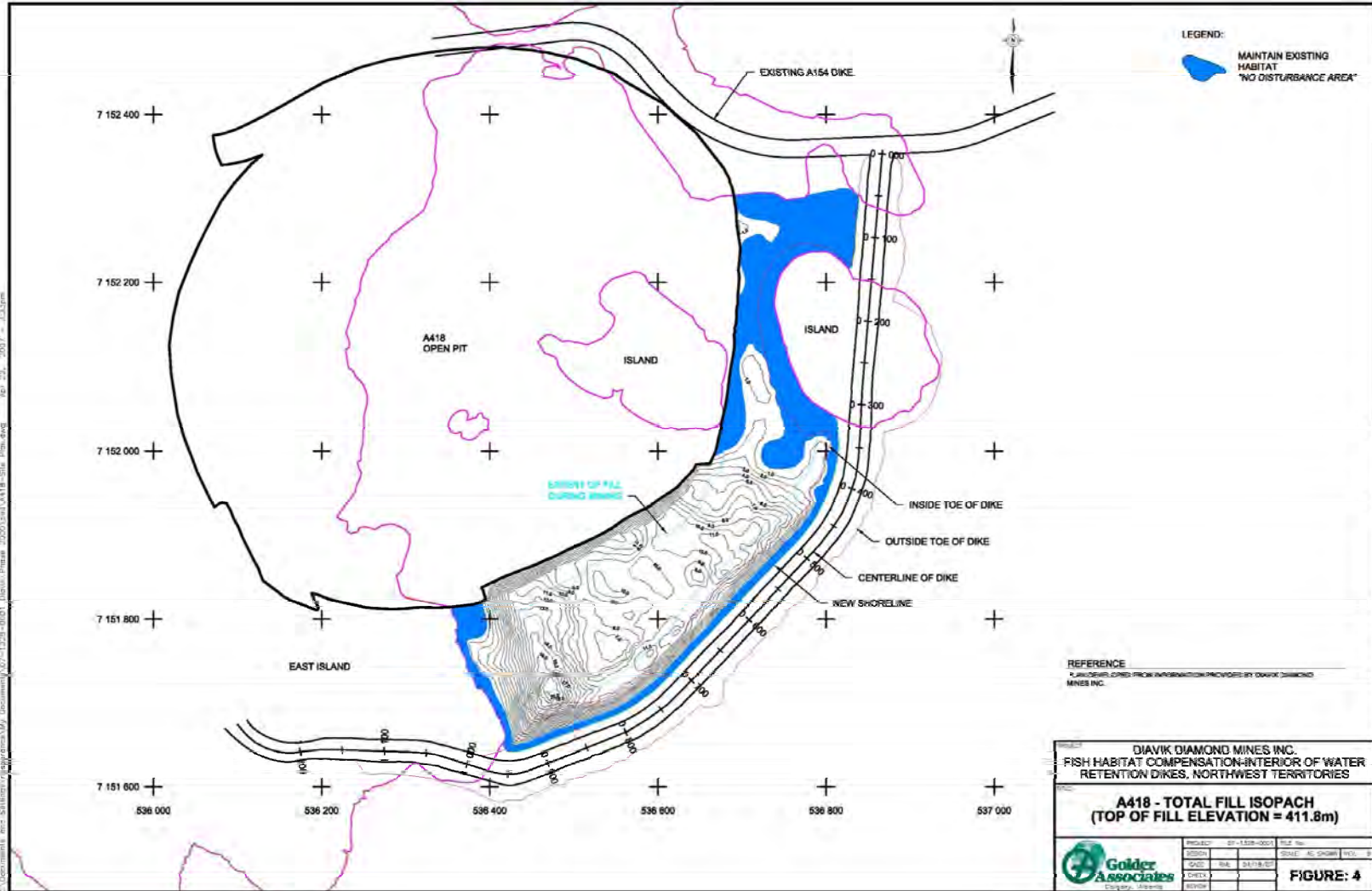
# A154 Design



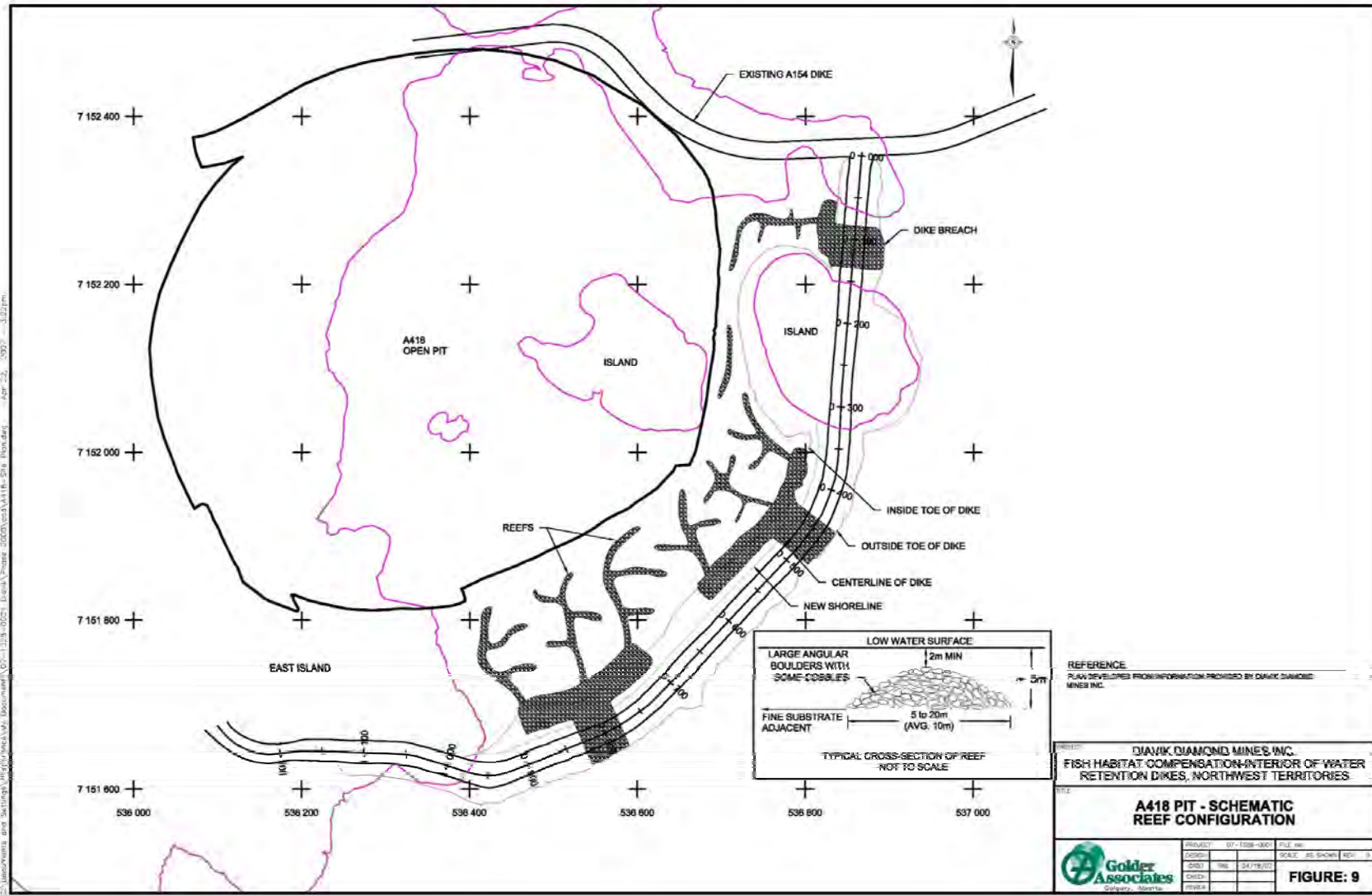
# A154 Design



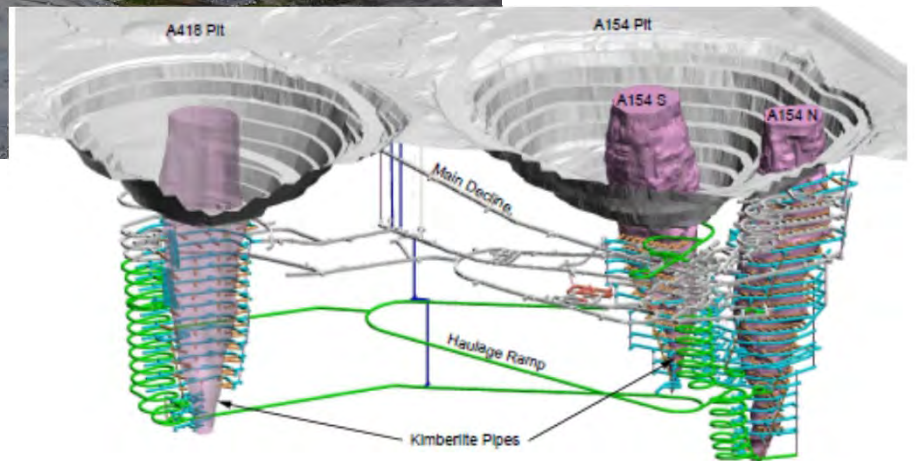
# A418 Design



# A418 Design



# What will be underneath the water?



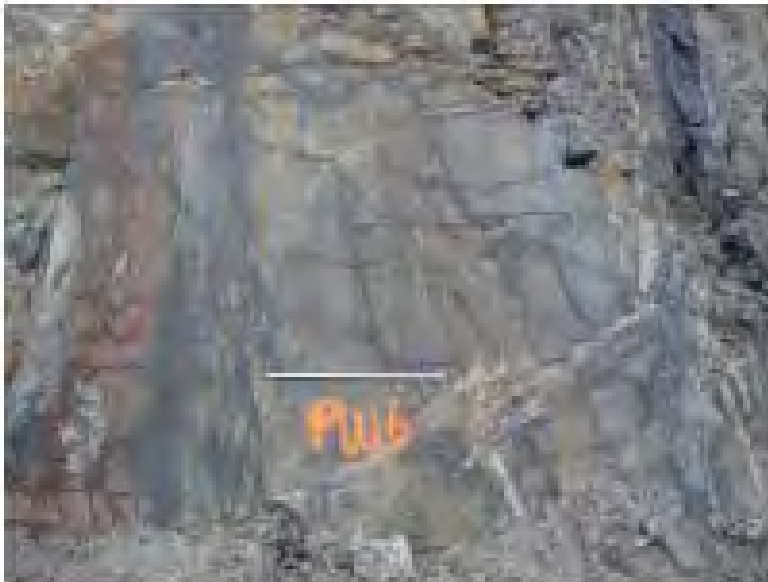


# Pit Wall Washing

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Results suggest that for all scenarios, Lac de Gras water quality dominates the overall pit water quality

**Dry (pre-rinse)**



**Wet (post-rinse)**



# Where?

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# Building a reef base

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# Questions for the Panel

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## Reefs:

- What are the best shapes for shoals?
- How close/far from land are they ideally located?
- What size of rocks are they made of?
- How big are they?
- Are/how are reefs connected?
- How deep should they be?

## Shoreline:

- What should it look like?
- Safe access for wildlife?

## **Appendix J**

### **Fisheries and Oceans Canada Presentation**



Fisheries and Oceans  
Canada

Pêches et Océans  
Canada

# Artificial Reefs as Offsetting in the North

**Julie Marentette**

Fisheries and Oceans Canada

TK Panel Meeting, December 3, 2015

Image credit J. Fitzsimons



## Outline

- DFO – Fisheries Protection Program
  - Mandate, legislation, policy
- Offsetting Measures
- Artificial Reefs
  - Use in the South and North
  - Characteristics
  - Monitoring
- Examples from the North
- Questions at the end



## DFO's Fisheries Protection Program - Mandate

The **mandate** of the Fisheries Protection Program is to maintain the sustainability and ongoing productivity of commercial, recreational and Aboriginal fisheries.







## Legislation and Policy

- ***Fisheries Act***
  - Section 35
    - Prohibits *serious harm to fish*
    - Allows for Authorization of impacts with conditions, including *offsetting*
- ***Species at Risk Act***
- **Fisheries Protection Policy Statement** (2013)
  - Guidance on implementing the fisheries protection provisions of *Fisheries Act*
- **Fisheries Productivity Investment Policy: A Proponent's Guide to Offsetting** (2013)
  - Guidance on measures to offset *serious harm to fish*



# Offsetting Measures

- Projects designed to counterbalance unavoidable *serious harm to fish*
- Goal: maintain or improve the productivity of the commercial, recreational and Aboriginal fishery.
- Can take a variety of forms.
- An enforceable condition of Authorization.



# Artificial Reefs

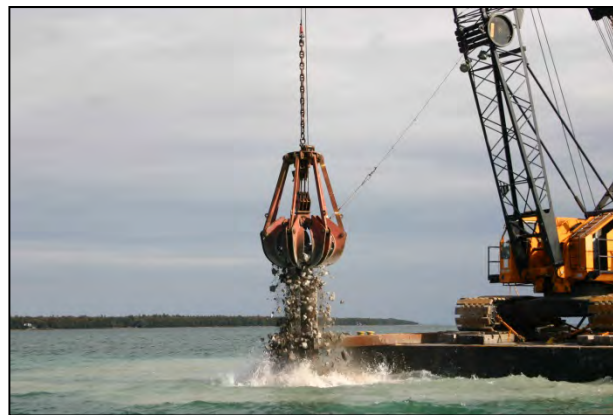
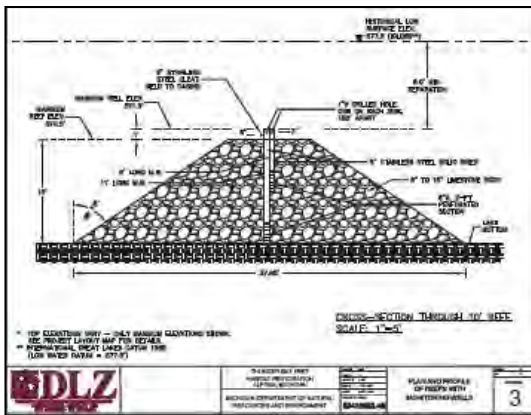
Built-up areas of coarse substrate

Oak Creek Power Plant (Lake Michigan) – image credit Chris Houghton



# Artificial Reefs in the South

Used in Laurentian Great Lakes since 1980's  
Lake Trout, Whitefish (spawning habitat is limited)



Thunder Bay, Michigan, USA (Lake Huron)  
<http://www.uvm.edu/rsenr/thunderbay/index.html>



# Artificial Reef Use in the North

Reefs have been used for offsetting for impacts to fish habitat in freshwater lakes and the marine environment.



Snap Lake, Jericho, Doris North: Reefs range in size from 100 m<sup>2</sup> to >1000 m<sup>2</sup>  
Also approved for Diavik, Gahcho Kué and Meadowbank (post-closure)



# Desireable Characteristics of Reefs

- Clean, non acid-generating rock
  - Rocks tend to be more similar in size than natural reefs
- Stable, no slumping
- Lots of gaps
  - Shelter for eggs and young fish





# Characteristics of Spawning Reefs

- Deeper than ice (generally  $>2$  m)
  - Fall spawners
- Cobbles and boulders, no fine substrate
  - Lake Trout
  - Whitefish/Cisco can also use smaller gravel/sand
- Some wind-wave action
  - slope

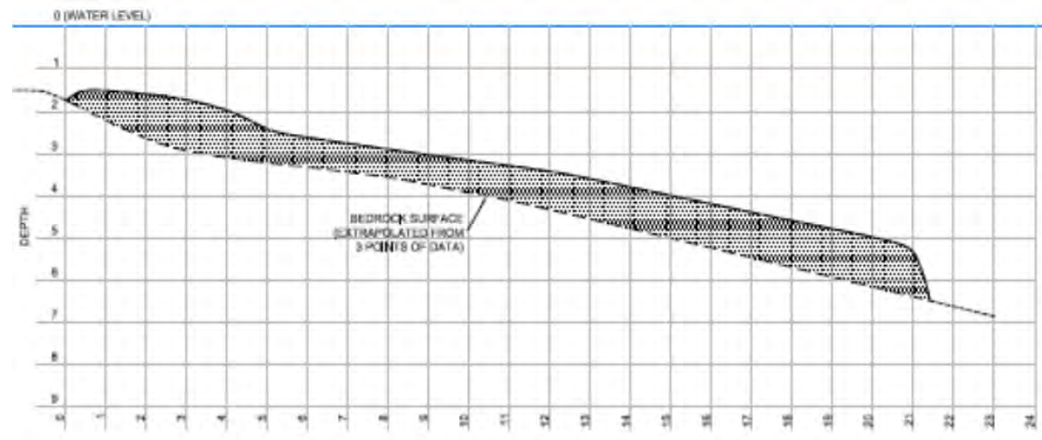
Fitzsimons 1996



# Monitoring Reefs

- Verify it is stable
- Compare it to natural reference areas
  - Substrate, depth profile, size, arrangement?

Engineering Plan for Artificial Reef (profile)







# When Monitoring for Fish Use

- SPAWNING
  - Spawning Adults
    - But are they just passing by?
  - Egg abundance
  - Water temp/ice depth
- REARING
  - Juvenile abundance
  - Other fish
  - Benthic invertebrates
- Compare to reference areas



Smokorowski et al. 2015



## Example 1

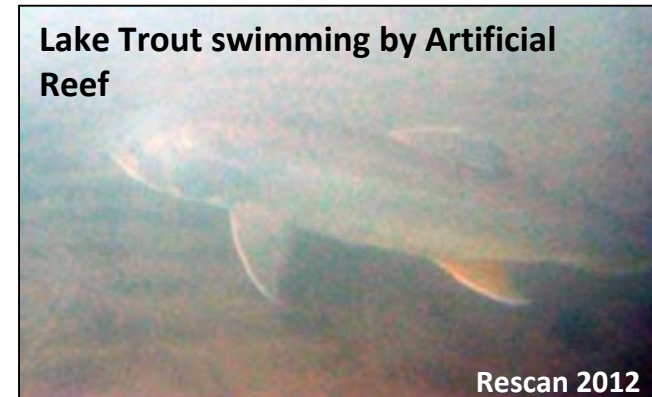
- Snap Lake, 2001
- 100 m<sup>2</sup>
- Goal: Lake Trout/Whitefish spawning
- DFO Science (Fitzsimons et. al 2012)
  - 30% of reef used by Lake Trout
  - >100 eggs/m<sup>2</sup>
  - No eggs on reference reefs
  - 2 and 6 years post-construction





## Example 2

- Windy Lake, 2011
- Six Shoals (621—1040 m<sup>2</sup>)
- Goal: Lake Trout rearing/  
foraging
- Years 1 2, 3, 5 post-construction
- Physically stable, but few fish  
observed nearby
  - Including natural reference shoals
- Similar # of invertebrates to  
reference shoals by year 2





## Example 3

- Lac de Gras
- Dike exteriors
- DFO Science (Fitzsimons 2013)
  - No eggs retrieved from dikes or nearby reference habitat
  - Loss of 'artificial eggs' from egg nets → very strong currents





## Summary

- Artificial reefs can be successful offsetting measures (depends on the project)
- Goal of the reef (spawning, rearing, foraging) determines how it is built and monitored
- Need to consider what natural reefs/shoals are like in the area (and where fish like to go)



# Thank you!

Questions and comments?

Image credit J. Fitzsimons

## **Appendix K**

### **TK Panel #8 Recommendations Presented to DDMI**

# Traditional Knowledge Panel

Session 8

DRAFT Presentation to DDMI

December 4, 2015



# Observations and Comments:

## Fish

- Fish can hear and feel what you are doing on the ice (e.g. skidoos, walking on ice)
- Fish need shorelines that provide a source of oxygen
- Pressure ridges and open water attract fish during the winter; making holes on ice can mimic pressure ridges (as an oxygen source); consider this when constructing the reef

# Observations and Comments: Water

- Bugs in the water are an indicator of health
- Important to monitor water continually even after closure
- Moon cycles affect water flow and currents
- If animals won't drink from the pits after they are filled, this is an indicator of a problem
- You can use a fish line as an indicator of current and watch how it changes; it is important to understand currents in LdG and LdS

# Observations and Comments:

## AEMP

- Use Diavik and TK Panel as a model for TK / WS collaboration in monitoring
- Explore model of “Watchers of the Land” from LKDFN for future monitoring and learning opportunities from Aurora College, ENR – GC initiative, BEAHR, etc.
- Youth need to be trained in monitoring starting today.

# Observations and Comments: Reefs or Shoals

- Minnows prefer gravel over fine, sandy material and they won't go into deep areas
- Currents are a key determining factor in spawning site selection and successful spawning
- Fish lay eggs in shallow areas
- We need to be clear on what makes a good habitat for spawning, rearing, resting and feeding
- Currents can shift around reefs
- Snow and ice will accumulate on top of reefs; ice is not as thick as in middle of lake (due to insulation)

# Observations and Comments: Shorelines

- Cliffs on shoreline in Pit A418 are a concern for caribou and other animals, especially when being chased
- Shoreline around Pit A154 looks okay with the current vegetation
- Shifting ice can alter shorelines

# Observations and Comments:

## General

- Mice, ground squirrels, and ermine help to clean land and water
- Water quality *and* quantity are both important issues
- Visiting disturbed sites (e.g. camp at Pellatt Lake) would be a good way to see natural regeneration
- Dust is a concern and should be monitored in the land, water and air

# Observations and Comments: General

- Water is more precious than diamonds
- Warmer winters lead to more pressure ridges
- Practice energy efficiency today (*Note: Added after review of workshop notes, January, 2015*)

# AEMP TK Study Recommendations

1. Maintain current camp site until at least 2018
2. Consider options to donate camp facilities to people traveling to LdG after the mine closes
3. In future programs, document why certain fish are rejected by elders
4. 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)



# AEMP TK Study Recommendations

5. Set fish nets on both sides of the island
6. Ensure two elders and two youth from each group attend future camps and meetings
7. Sample fish and water from the Narrows (In both LdG and LdS)
8. Consider additional water sampling locations from different areas

# On Island Recommendations

9. Do not breach dikes until the TK Panel is satisfied with the water quality through visual inspection and reviewing results from scientific analysis
10. Focus water quality monitoring on the NCRP
11. 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 channel. In the short term, install industry filtering system. Monitor this water quality.
12. Monitor fish spawning areas closely, especially in the SE part of island (i.e. area just south of the pits)
13. Monitor and test water in pits and around East Island regularly

# On Island Recommendations

14. Regularly stock on-island pond water with bugs to improve water quality
15. Test water scientifically and not by tasting
16. Regularly measure heavy metals all around island
17. Monitor water in late May and early June as these are critical times (i.e. melt)
18. Regularly measure water quality in all bays, drainage and run-off
19. Annually check for algae growth around shorelines as too much can be an indicator that there is less oxygen for the fish

# On Island Recommendations

20. Leave the land between the pits and the dikes as it is for natural regrowth when flooding
21. Leave dikes as they are (i.e. do not modify the slope or current construction)

# Reefs Recommendations

22. Vary depths of built reefs
23. Don't build or minimize building reefs on previous lake bottom areas inside dike area (i.e. protect undisturbed and naturally vegetated areas)
24. Ensure good fish habitat for rearing, feeding and resting on reefs inside dike
25. Stock water in open pits with bugs to improve water quality

# Shoreline Recommendations

26. Provide opportunity for the TK Panel to view the present shoreline when snow-free to consider further recommendations (in spring)
27. Break-up the 1 km cliff on pit A418 with slopes (to make it safe for caribou)
28. Leave current roads into the pits (e.g. A154)

# General Recommendations

29. Explore long term monitoring options including how to coordinate and administer an ongoing post-2030 program that continues to integrate TK and science, involves both elders and youth trained in science (consider funding, and if some of the bond can be used)
30. Ensure long term scientific monitoring of NCRP to determine if it remains frozen and stable
31. Continue to provide TK Panel with teaching and communication ‘tools’ (i.e. videos, books, photos), to share progress and findings on closure planning with communities

# General Recommendations

32. Plan for climate change hundreds of years into the future
33. Re-seed land and use dirt and *safe* sewage to facilitate re-growth



# Questions for Diavik

- What if contaminated water flows downstream to Kugluktuk? – DDMI has to have controls and monitoring on the Island; too late if it were to get to Kugluktuk
- What will be left behind from operations underground or in the pits? – DDMI presently making an inventory of what has to come out versus what we can leave behind; starting planning and discussions with regulators
- How many streams and rivers flow into LDG? – DDMI will report this back to the TK Panel

# Questions addressed by Diavik

- What do you mean by “bad” water? – Ground water is saltier than lake water
- Will the pit walls be washed? – No, tests have shown that it won’t make a difference
- How long will it take to fill pits? - Approx. 6 mos.
- Will filling the pits change the water level of LdG? - By 1 to 2 cm
- How deep and wide will dike breaches be? – Approx. 30 m wide and 2-3 m below low water depth

# Questions addressed by Diavik

- What are the chemicals in the sewage? -  
DDMI will report this back to the TK Panel

## **Appendix L**

### **TK Panel Process Presentation**

# Diavik Diamond Mines

## TK Panel Session #8 – next steps

December 2015



# TK Panel Topics & Schedule Suggestions

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Session	Original Plan (2013)	Completed & Revised Plan
6	PKC	PKC
7	Re-vegetation	Re-vegetation
8	Review of Closure Landscape	Fish Habitat Design & Water Quality
9	Post-closure monitoring: Wildlife & Water	<b>Post-closure Wildlife Monitoring (Apr/May 2016 - site)</b>
10	Fish Habitat Design Reviews	<b>Closure Plan Update &amp; Landscape Overview (Aug 2016 - Yk)</b>

The next update for Diavik's closure plan is due at the end of 2016

## **Appendix M**

### **TK Panel Session #8 Evaluation Summary**

**2015 Diavik TK Panel, Session 8: Evaluation Form Summary**

Question	Very Good	Good	Neither Good nor Poor	Poor	Very Poor	Total Responses	Comments
How would you rate the session for working and communicating together?	11	3	0	0	0	14	
How would you rate the session for mutual respect among participants?	11	3	0	0	0	14	
How would you rate the recording of TK during the session?	10	2	1	0	1	14	Translations
How would you rate the facilitation of the session?	10	2	1	0	0	13	1 unanswered
How would you rate the outcomes and findings of the session?	10	4	0	0	0	14	
How would you rate the venue and food for the session?	10	1	2	0	0	13	1 missed
How would you rate the logistics for the session (e.g. hotel, travel, honoraria)	10	2	1	0	0	13	1 missed
Overall, how would you rate the session?	11	2	0	0	0	13	1 missed

Question	Too long/ many	Enough	Too short/few	Total Responses	Comments
How would you rate the opportunities for you to share your knowledge and experiences?	3	11	0	14	
How would you rate the amount of time to discuss the topics during the session?	1	9	3	13	1 missed

**What were the strengths of the session? What did you enjoy most about the session?**

- *The feedback*
- *All the feedback and understandable info*
- *Everything good*
- *Very informative*
- *Everything was clear and not rushed; happy with the outcome*
- *Listening to the Elders; some of them had pretty awesome stories*
- *Enjoyed the group discussions, interacting with youth/Elders opinions; Elders hold stories from the past, youth bring with them modern information*
- *Meeting good friends from all over the North*
- *Being positive and making connections with other people from different communities*
- *Coming to solutions for problems*
- *Traditional Knowledge*
- *You all do a fine job*
- *Always repeating questions and giving time to go over issues until we were clear on our answers*

**How could the session be improved?**

- *More youth representation and involvement*
- *Having more youth participants*
- *On site next time*
- *Have more of these types of sessions on TK*
- *Providing more information to the mines*
- *More space for meeting*
- *More meetings with Diavik*
- *Lunch at the meeting*