

INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY



2017-2018 ANNUAL REPORT

PLAIN LANGUAGE

A PUBLIC WATCHDOG FOR ENVIRONMENTAL
MANAGEMENT AT EKATI DIAMOND MINE

CONTENTS

Message From the Chair	3
Mining at Ekati	4
How We Do Our Work	6
Wildlife	10
Water and Fish	16
Regional Monitoring & Cumulative Effects	21
Traditional Knowledge	23
Air Quality	26
Waste Rock	29
Expansion Projects	32
Closure and Planning	34
How Are the Regulators Doing?	38
How is Dominion Diamond Doing?	41
Recommendations	43
Glossary	47

MESSAGE FROM THE CHAIR

I am pleased to present the 2017-18 annual report of the Independent Environmental Monitoring Agency (Agency). Our report this year comes in two versions, a technical report and a plain language version. The report summarizes the Agency's activities and offers recommendations for Dominion Diamond Ekati ULC (Dominion Diamond) and for the regulators.

This past spring the Agency celebrated our 100th Board meeting. We have seen many changes to the mine over the years and continue to participate in regulatory processes, closely review all the monitoring reports and contribute to the improvement of monitoring plans and programs to ensure good environmental performance at the mine.

This year there was a change in the Director appointed by the North Slave Metis Alliance as Arnold Enge stepped down and Bill Slater was appointed. Jessica Simpson, our Communications and Environmental Specialist, also left the Agency. I would like to take this opportunity to thank both Arnold and Jessica for their contributions and welcome Director Bill Slater and our new Communications and Administrative Specialist, Shannon Moore.

During the past year the Agency has participated in the Misery Underground project water license amendment. Our main concerns involved mine water management, closure of the underground mine, and the sensory disturbance to wildlife, in particular caribou, from increased road haul traffic. We also participated as an intervener in the potassium effluent quality criteria (EQC) water license amendment proceedings where our main recommendation was that the EQC be established at



Agency chairperson: Jaida Ohokannoak

levels that ensure short-term and long-term site-specific water quality objectives are not exceeded in the downstream environment.

Another key activity for us this year was hosting an environmental workshop on waste rock including presentations by the Agency, Dr. Leslie Smith, Prof. Emeritus UBC, and Dominion Diamond. The workshop provided good information as a primer to future discussions regarding the closure issues associated with waste rock piles.

This past year the Agency travelled to the community of Kugluktuk, Nunavut and hosted a community open house and met with the Kitikmeot Inuit Association and Municipal Council Members. We also had an opportunity to learn a bit of Inuit Qaujiamjatuqangit (Inuit traditional knowledge) by going out on the land and experiencing some local culture.

Over the next year we will continue our efforts to ensure that the Ekati mine maintains its good environmental performance. Please feel free to contact the Agency at any time with your comments and concerns, or if you wish for us to visit your community.

Jaida Ohokannoak

MINING AT EKATI

Dominion Diamond Ekati ULC (Dominion Diamond) is mining diamonds using large open pits and underground tunnels to remove the kimberlite rock that contains the diamonds.



1 Long Lake Containment Facility

The Long Lake Containment Facility (tailings pond) holds the crushed wet kimberlite that remains after diamonds are removed. It is a lake divided into five sections (cells A to E) by dikes (rock walls) so the processed kimberlite can settle. Water is eventually released into lakes downstream when it is clean and pollutants are below the amounts set in the water licence.



2 Main Camp

This area includes an accommodation building for hundreds of workers, a power plant, a truck shop and a processing plant where the diamonds are removed from the kimberlite.



3 Waste Rock Piles

Rock that does not contain diamonds is piled in layers over 50 metres high



4 Incinerators

The building where garbage is taken to be burned.



6 Fox Pit

This is the biggest pit at Ekati. Mining was finished in early 2015.

5 Pigeon pit

Pigeon Pit is a relatively small pit that is currently being actively mined. It is expected to be mined until 2020.

7 Lynx Pit

The Lynx Project was officially approved on May 30, 2014 by the GNWT Minister of ENR. The pit has been active since 2015 and the water licence it is approved under expires in 2021.



8 Sable Pit

Infrastructure work including road construction, dewatering, and dyke construction has begun. Active mining is expected to begin by 2018 or 2019.



9 Beartooth Pit

Dominion Diamond has finished mining Beartooth Pit. The company currently stores water from underground mining in the pit. Beginning in 2012, Dominion Diamond has also used Beartooth Pit for processed kimberlite.

10 Panda and Koala Pits

Open pit mining has finished here. Underground mining is finished at Panda, but is still happening at Koala. Dominion Diamond has built an underground tunnel (located between Panda and Koala pits) to provide access to the bottoms of the pits. A conveyor belt system takes the kimberlite rock to the processing plant.



11 Panda Diversion Channel and Pigeon Stream Diversion

The Panda Diversion Channel and Pigeon Stream Diversion are man-made streams diverting water that would otherwise flow into the pits. Fish, mostly grayling, use the new channels for travel and spawning. The Pigeon Stream Diversion was opened in 2014.

12 Haul Roads

Dominion Diamond has built all-weather roads to connect the pits to Main Camp. Dominion Diamond carefully applies chemicals to reduce dust on the roads. They apply to try to make sure that chemicals do not seep into the lakes and streams near the roads.






13 Misery Pit

Dominion Diamond stopped mining the Misery Pit in 2005. Since then it has been pushed back and re-opened and is currently being mined. It is expected to remain open until 2019.



HOW WE DO OUR WORK

HIGHLIGHTS

-  Held 3 Board meetings, Annual General Meeting, and a community session in Kugluktuk, Nunavut.
-  Took part in Misery Underground and Potassium Water Licence Amendment actions.
-  Had a Waste Rock Workshop as our environment event.

ACTIVITIES 2017-18

We held three board meetings in Yellowknife during 2017-18. We also had an information session in Kugluktuk, Nunavut.

At the Kugluktuk meeting, we talked about new projects at the mine. We also showed our new video. It tells what we do and has pictures of the mine and how it works. (You can see the video on our website – www.monitoringagency.net.)

As part of our visit, we met with the Kitikmeot Inuit Association, and the mayor and council. We learned about local concerns, including water quality and shifting wildlife patterns. Making sure water downstream of the mine stays clean is their top priority. The area around Ekati mine has the headwaters of the Coppermine River. This is the source for Kugluktuk's drinking water.

We made our yearly site visit to Ekati in September 2017. We saw the new Jay Road, the Lynx Pit, the planting project at Long Lake, and the area near Sable Road. We talked with Dominion Diamond staff too. We talked about the sale of the mine, the Pigeon project, the new Fox Deep project, and the water licence change application.

On January 17, 2018, we had our Annual General Meeting. We presented our Annual Report and our Financial Statements to society members. The next day, we held an environmental workshop. The topic this year was Waste Rock. The workshop was well-attended. The main speech was by Dr. Leslie Smith. He talked on waste rock storage areas. The Agency and Dominion Diamond also gave talks. There was a lot of useful chat during the workshop. We were glad for the input from community members.



Agency site visit to Ekati mine, September, 2017.

TECHNICAL REVIEW AND INPUT

We were part of a number of major reviews:

Misery Underground – We gave early comments and went to the technical session and public hearing for the Misery Underground Project. We did not send in an intervention. Our concerns were answered at the tech meeting.

Potassium Effluent Quality Criteria Water Licence Amendment – We made early comments on the amendment. We also took part in the tech session and public hearing. We were interveners at the public hearing. Our main concern? What

if the Site Specific Water Quality Objectives (SSWQO) are exceeded? We think that using EQC and mitigation would help. Then the SSWQO for potassium should be OK. This should be true even in the under-ice period.

We are still waiting for the final decision on the licence amendment.

Studies & Reports – We made comments on studies of waste rock at the Ekati mine in 2017-18. Some of our main concerns were water balances, lack of monitoring data, and how to calculate acid rock neutralization potential.

In addition, we gave comments on:

- Engagement Plan
- Waste Management Plan
- Aquatic Response Framework Response Plans
- GNWT's Bathurst Caribou Range Plan
- Sable Aquatic Effect Monitoring Program (AEMP) Design Plan and the Aquatic Response Framework
- 2017 Closure and Reclamation Progress Report

OUR COMMUNICATIONS

Timeline – We have been working to improve our website Timeline.

Translation of Video – Our video was released in the fall of 2017. We are happy to have 3 translated versions of the video. They are in Chipewyan, Inuinnaqtun, and Wìlììdeh. The Tłıchq video is almost ready. These translated videos will be on our website.

Website – The new website was launched in the fall of 2017. It is now much easier to find things on the site, and it is being updated more often. A new way to share updates in our News section is going to start this year.

Social Media – We are now more active on social media. Our Facebook page and Twitter account are used to promote our latest news. We hope to use social media to share our work with more people in the coming year.



The Agency participating in public hearings in Behcoko, NT, February, 2018

Inter-Agency Coordinating Team (IACT) – IACT consists of us, Dominion Diamond, and government regulators. The last group includes the Government of the Northwest Territories (GNWT), Indigenous and Northern Affairs Canada (INAC), Fisheries and Oceans Canada (DFO), and Environment and Climate Change Canada (ECCC). The purpose of IACT is to help sharing of information between regulators and Dominion Diamond.



There were no IACT activities in 2017-18. There haven't been since 2014. We brought the issue up with the GNWT during our March 2017 Board Meeting. Then the GNWT put out a request to IACT members for ideas and feedback on reviving IACT. The GNWT's told us: *"The feedback... received from ECCC, DFO and internally from the GNWT indicate that there isn't an interest in reviving the IACT at this time and therefore the GNWT won't pursue reactivating IACT."*

Table 1: Main Agency Activities 2017-18

Date and Location	Purpose	Main Issues
May 8-12 Kugluktuk, NU	Annual Report Writing Session and Community Visit	This was the first time the Agency combined the Annual Report Writing Session with a Community Visit. School visit with a fish tagging demonstration, Meet and Greets with Kitikmeot Inuit Association and the Hamlet of Kugluktuk, Community Information Session/Open House, and an on the land activity with local outfitter.
June 6 Yellowknife	Environmental Agreement Implementation Meeting	Dominion Diamond presented their upcoming community meetings. The Agency presented the Annual Report recommendations.
June 28-29 Yellowknife	Bathurst Caribou Range Plan Technical Workshop	Discussed Zone of Influence, the plan itself, seasonal range sensitivity, adaptive management elements for the range plan to create directions and action plans for going forward with the range plan.
September 12-13 Ekati Diamond Mine	Site Visit	Visited “all 4 corners” of the site, including the new Jay road under construction, Lynx Pit, Cell B of the Long Lake Containment Facility. Discussed the Misery Underground Project with Dominion Diamond Staff.
September 14 Yellowknife	Agency Board Meeting	On site portion received presentation from Dominion Diamond on Misery Underground project, brief mention of Fox Deep project and discussion with Dominion Diamond regarding recent comments on the Pigeon Waste Rock Pile. In town meeting discussed resignation of NSMA appointee, variance report, and upcoming review items such as Misery Underground and Potassium Amendments.
October 13 Via teleconference	ZOI Technical Task Group Meeting	The analysis and potential implications of the 2009 and 2012 aerial survey data. Update on the state of the guidelines document.
November 28 Yellowknife	Misery Underground - Technical Session	Agency attended and asked question based on our initial comments our main concern was with the timing of operations and the management of water. Dominion Diamond addressed our concerns
November 29 Yellowknife	Potassium EQC Amendment – Technical Session	Agency attended and had discussions with Dominion Diamond based on our initial comments. We could not come to an agreement on all issues. We included remaining issues in our intervention.
December 5-6 Yellowknife	Agency Board Meeting	Discussed the variance report, reviewed and updated all Agency policies, discussed upcoming workshop and items currently out for review and provided all directors with an update on various amendment applications.
December 12, 2017 Yellowknife	Bathurst Caribou Research Objectives Meeting	Workshop was held with Society members and other affected communities. The purpose was to identify research priorities for the Bathurst Caribou. Dominion Diamond has \$500,000 over 3 years to fund research outside of mine specific monitoring. This meeting was used to determine how best to allocate the funds.
January 15 Yellowknife	Jay Project Aquatic Effects Monitoring Program, Technical Workshop	Agency attended and participated in the Jay AEMP workshop.
January 17-18 Yellowknife	Annual General Meeting & Environ-mental Workshop	The AGM had quorum. Environmental workshop was very well attended with representatives from all society member’s communities represented. The selected theme was waste rock. Dr. Leslie Smith, Professor Emeritus at UBC, was a guest speaker and gave a presentation on the general functions of waste rock piles. The Agency and Dominion Diamond also gave presentations specific to the Ekati mine. There was lots of good discussion.
February 7-8 Behchoko	Misery Underground - Public Hearings	Agency attended but did not present or submit any intervention as our main concerns were addressed at the technical sessions.
February 8 Behchoko	Potassium EQC Amendment Public Hearing	The Agency submitted an intervention which was presented at the public hearing.
February 13-14 Yellowknife	Mackenzie Valley Resource Management Act Workshop	Director Tim Byers was a panelist at this workshop, and staff member Shannon Moore attended the workshop to further familiarize herself with the Environmental Assessment process in the NWT.
February 27-28 Yellowknife	Interim Closure & Reclamation Plan Workshop	Dominion Diamond held a workshop in Yellowknife for stakeholders on the development of its update to the Interim Closure and Reclamation Plan (ICPR) for the Ekati mine.
March 13-14 Yellowknife	Agency Board Meeting (100th)	Dominion Diamond and the GNWT attended a portion of the meeting as the Agency presented a summary of budget and upcoming workplan. Agency discussed upcoming annual report writing session, dates and divided tasks.

WILDLIFE

HIGHLIGHTS

-  Over 52,000 caribou seen at the mine in 2017
 - Most caribou were seen along the Sable Road.
-  The Wildlife Effects Monitoring Plan and Caribou Road Mitigation Plan approved by ENR.

Note: To avoid confusion between the annual Wildlife Effects Monitoring Program (WEMP) and the recently revised Wildlife Effects Monitoring Plan (also WEMP if an acronym were used), we have written out the Plan in full.

ACTIVITIES 2017-18

Dominion Diamond's Wildlife Effects Monitoring Program (WEMP) tells us how mining impacts animals. It also reports if wildlife management at Ekati is working well. The 2017 WEMP centres on wildlife habitat and animals of greatest interest. They are caribou, grizzly bears, wolves, wolverines, foxes, raptors and breeding birds. WEMP tells about wildlife accidents and views, surveys, and remote camera work. Wildlife surveys were done near the Misery Road power line.

How Big is Ekati Mine?

In 2017, more habitat was disturbed at the Ekati mine. This was due to making the Lynx and Pigeon pits larger. Building the Jay Road and Sable Pit also took place. The total habitat loss caused by the mine since 1997 is now 36 km², including more than 136 km of road.

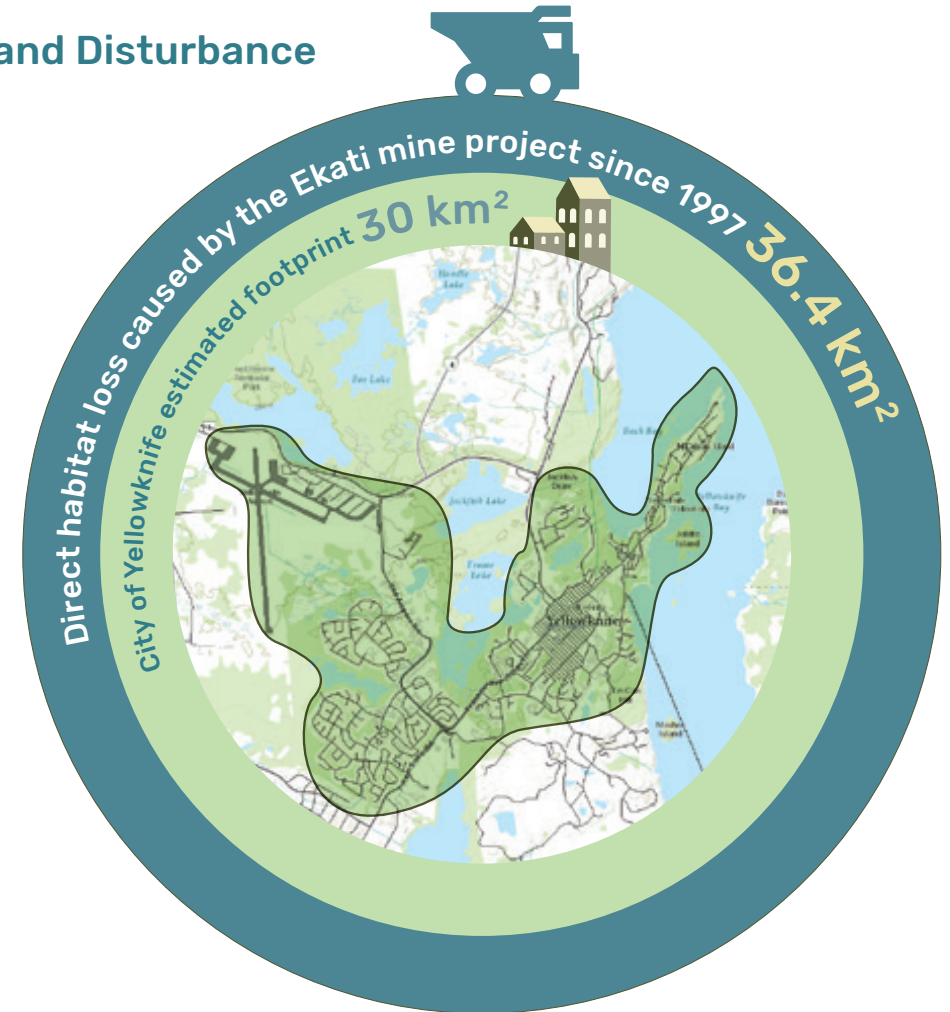
Waste Management

Dominion Diamond still tries to improve how it handles waste. This helps to keep wildlife away from danger. People seem to be doing better at handling waste. The number of mistakes in 2017 is the lowest recorded. Over 400,000 kg of solid waste was shipped off site. Also 180,000 kg of biodegradable waste was composted.

Wildlife Incidents and Deaths

An incident is a direct meeting between wildlife and humans or objects. Twelve wildlife incidents were reported at Ekati over the last year. Wildlife included 8 grizzly bears, a wolverine, 2 small mammals and one bird. Deterrents were used for the grizzly bears and the wolverine. The number of events in 2017 was about the same as other years. There were 13 reports of caribou near roads. They caused higher alert levels. Nine times the road was closed for a short time.

Land Disturbance



How often did a vehicle kill wildlife? There were 10 deaths in 2017. That's about the same as in other years. The most surprising death was a peregrine falcon. No caribou deaths from mine activities have happened in recent years.

Misery Power Line

In 2017 wildlife surveys were done by wildlife monitors almost every day during use of the power line. A total of 127 caribou in 18 groups were seen. This was mostly during winter. Caribou and other wildlife didn't seem bothered by the power line.

Watching Caribou

Caribou monitoring for 2017 included studying data from collared cows. There were also reports when caribou were seen and studies of caribou actions. They also watched caribou by the Long Lake Containment Facility (LLCF) and with wildlife cameras. Special road surveys were added in 2017. Testing of an infrared camera gave mixed results.

This year, 52,583 caribou were recorded. This is by far the highest number since 2006. Most sightings were in winter. In other years, most caribou were seen during spring migration and summer or fall. Collar data showed that caribou from the Beverly/Ahiak herd were present the last two winters. Most of the caribou were seen on the eastern edge of the mine and along the Sable Road. Road traffic volume data were collected but not available for the 2017 WEMP. These data will be provided by Dominion Diamond during summer 2018.

Nine behaviour surveys and 17 scan surveys were done near Ekati. How much time does an animal or group spend on activities (like bedding, feeding, running)? The caribou spent less than 10% of their time on alert and more than 75% either feeding or bedded. The numbers are like those found in 2010-2013 at Ekati.

The LLCF wildlife program shows wildlife activity in the LLCF. Only 3 caribou were seen near the LLCF in 2017. So far, no caribou injuries or deaths have been blamed on the LLCF.

The Wildlife Camera Monitoring Study was started by Dominion Diamond in 2011. It uses motion-triggered cameras to see how caribou react to the mine and its roads. Seventy-eight infrared motion-triggered cameras were used in 2017 along roads and at the Narrows between Lac du Sauvage and Lac de Gras. No results were given yet, but a report is expected in summer 2018.

Since 2015 Dominion Diamond has supported research into finding what bothers caribou near the mine. Studies have looked at noise, dust, soil changes, and plants around the mine site. Early results show caribou actions are different when they are close to the mine.

Watching Grizzly Bears

Grizzly bears were monitored at Ekati when seen and by remote cameras. There were 148 bears seen at 84 times. There were 16 family groups. Most sightings were along the roads. A regional hair-snagging DNA study was done in 2017 with Diavik. Results will be given later.

Other Wildlife

Wolf dens were not checked this year. In 2017, wolves were seen 93 times for a total of 148. Wolf sightings were scattered evenly on the mine site.

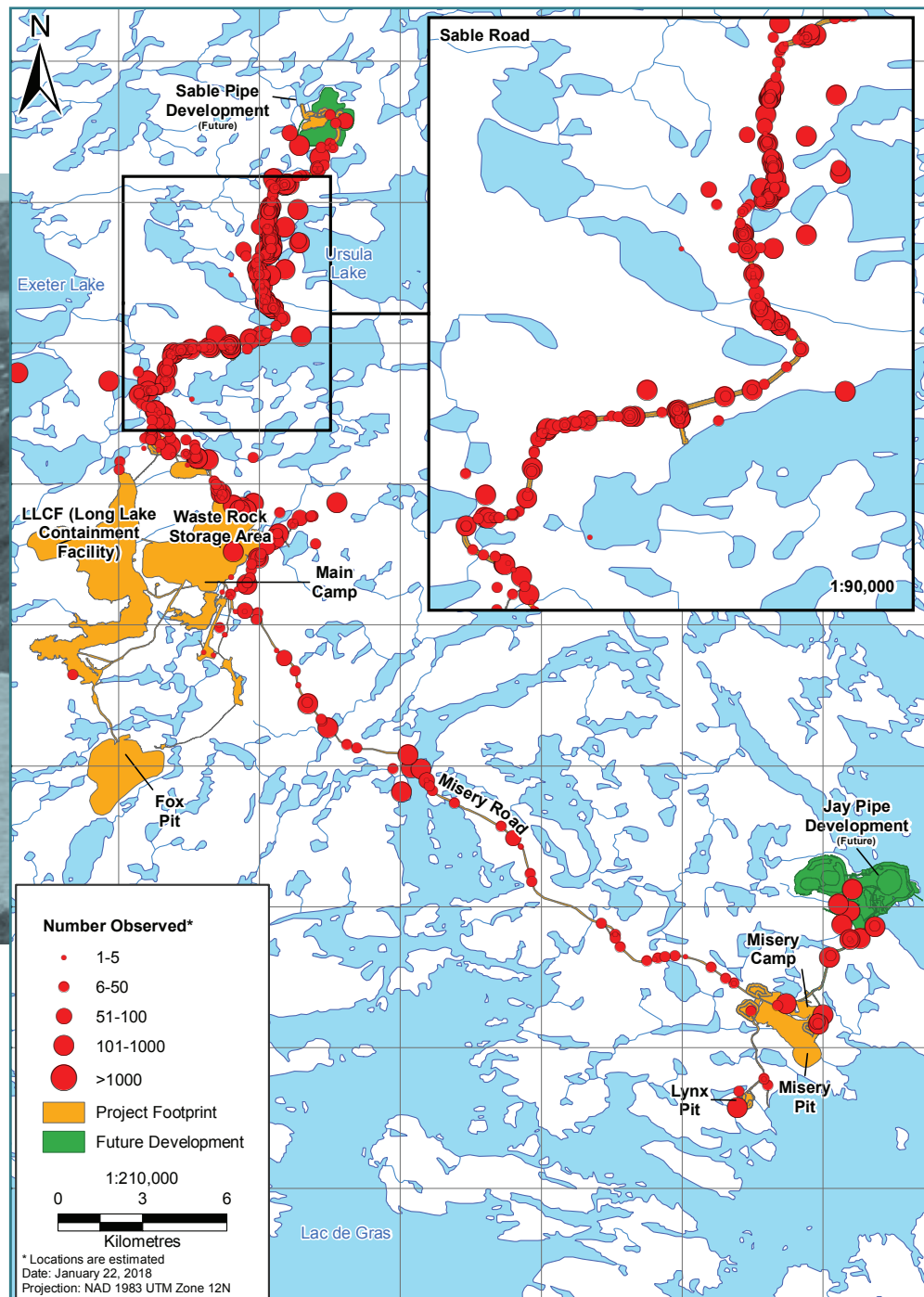
In 2017, wolverines were seen 33 times. This is among the highest recorded since 2006. These wolverines were seen all over the mine site. The high numbers of wolves and wolverines are likely related to the high number of caribou.

Arctic fox and red fox were not named as Valued in the review process. Foxes are a worry at Ekati mine though. They are attracted to human activity, and there is a risk of rabies. In 2017, 162 foxes were seen everywhere at the mine site. About 12% were Arctic fox. There was no rabies during 2016 and 2017.

Five moose and one muskox were seen in 2017.

Raptors nested in five of the pits in 2017. Several had baby birds. Nesting was discouraged at Pigeon pit to avoid conflict with mining. No gyrfalcon nesting was found. This continues a decline since 1995.

The North American Breeding Bird Survey was conducted for the 15th year. 394 birds were seen. They were of 21 types. This is a low number, but the survey was done later than usual.



Caribou at Ekati mine
Photo courtesy of Dominion Diamond Mines ULC

Figure 1. Incidental caribou observations at the Ekati Diamond Mine, 2017.

(Fig. 5.3-1 from the 2017 WEMP). The red dots show where caribou were observed but do not account for the distribution of personnel across the mine site.

OUR ASSESSMENT

The 2017 WEMP annual report is well done. It covers all wildlife programs done by Dominion Diamond at the Ekati mine. The report gives good details on 2017 work and trends from other years. The WEMP should, however, not conclude wildlife is getting used to the mine or to the power line. More work is needed.

In recent years, there have been changes to the timing and herds of caribou near the mine. They are seen more often in winter and from both the Bathurst and Beverly/Ahiak herds. Of course, winter is dark, and it is harder to watch the caribou. Other ways to detect caribou may be needed.

Dominion Diamond has worked to make roads easier for caribou to cross. Over 70% of the short Jay Road is built to a caribou-friendly design. However, there is heavy use by caribou in the Sable Road area. This suggests that the Sable Road should be as easy as possible for caribou to cross. This includes design as well as noise control. A few 'caribou crossing structures' may not be good enough for easy crossing by most caribou. Also, the current WEMP does not have any measure or discussion of caribou crossing success. This should be corrected in future WEMPs or in another report.

Dominion Diamond has worked to make the physical structure of roads on the mine site more permeable to caribou. These include installing caribou crossings (the locations of which were identified by the Traditional Knowledge Elders Group and other community members during the Community Caribou Engagement Program), using smaller rocks on the road shoulders, and ensuring the road is smooth and as close to the level of the tundra as possible. Over 70% of the relatively short Jay Road is built to a caribou-friendly design. However, the heavy use by caribou around the Sable Road area suggests that the Sable Road should be as permeable to caribou as possible, from the point of view of both physical structure and sensory disturbance. Given the extent to which caribou were observed in large numbers along the entire length of the Sable Road in 2017, a majority of the road should be designed with low slopes and small-crush to facilitate crossing by caribou. A select number of 'caribou crossing structures' may not be adequate to facilitate easy crossing by a majority of caribou. Similarly, the current WEMP does not provide any measure or discussion of caribou crossing success. This should be corrected in future WEMPs or an independent report.

Wildlife Effects Monitoring Plan and the Caribou Road Mitigation Plan




The WEMP is guided by the Wildlife Effects Monitoring Plan. The Caribou Road Mitigation Plan (CRMP) was first made for the Jay Project. Then it was used for all roads at Ekati during 2016. Both documents have been updated in the past 2 years. In response to review comments from us and others, Dominion Diamond made changes. They were sent to ENR in March 2017. After more changes, ENR approved both plans in June 2017. Both plans are being used across the mine site.



Grizzly near emulsion plant 1

WATER AND FISH

HIGHLIGHTS

-  An increase in the Water License Potassium Effluent Quality Criteria (EQC) was requested by Dominion Diamond.
-  Selenium in Leslie Lake has risen and may have bad impacts on water life.
-  Sable Aquatic Effects Monitoring Program Design Plan to monitor fish is not good enough.

Each year Dominion Diamond carries out programs to find if water downstream of the Ekati mine is changing because of mining and activities. There are five watersheds: Koala, King-Cujo, Pigeon-Fay-Upper Exeter, Horseshoe, and Carrie Pond. Lakes and streams in four of these watersheds are tested each year under the Aquatic Effects Monitoring Program (AEMP). This is required by Dominion Diamond's Class A Water Licence.

MAJOR ACTIVITIES 2017-18

Processed kimberlite (PK), sewage, and sump water are still sent into the Long Lake Containment Facility (LLCF). Lots of process plant slurry (PK and water) was pumped into the Beartooth Pit. Water was later pumped from Beartooth Pit to the LLCF's Cell C. A large amount of waste water was released from the LLCF between June and September 2017. It entered the Koala watershed through Leslie Lake, and was diluted as it flowed downstream to Lac de Gras (Figure X). This discharge was stopped on July 27 when it was found that it had too much Total Suspended Solids (TSS). Discharge started again on August 10.

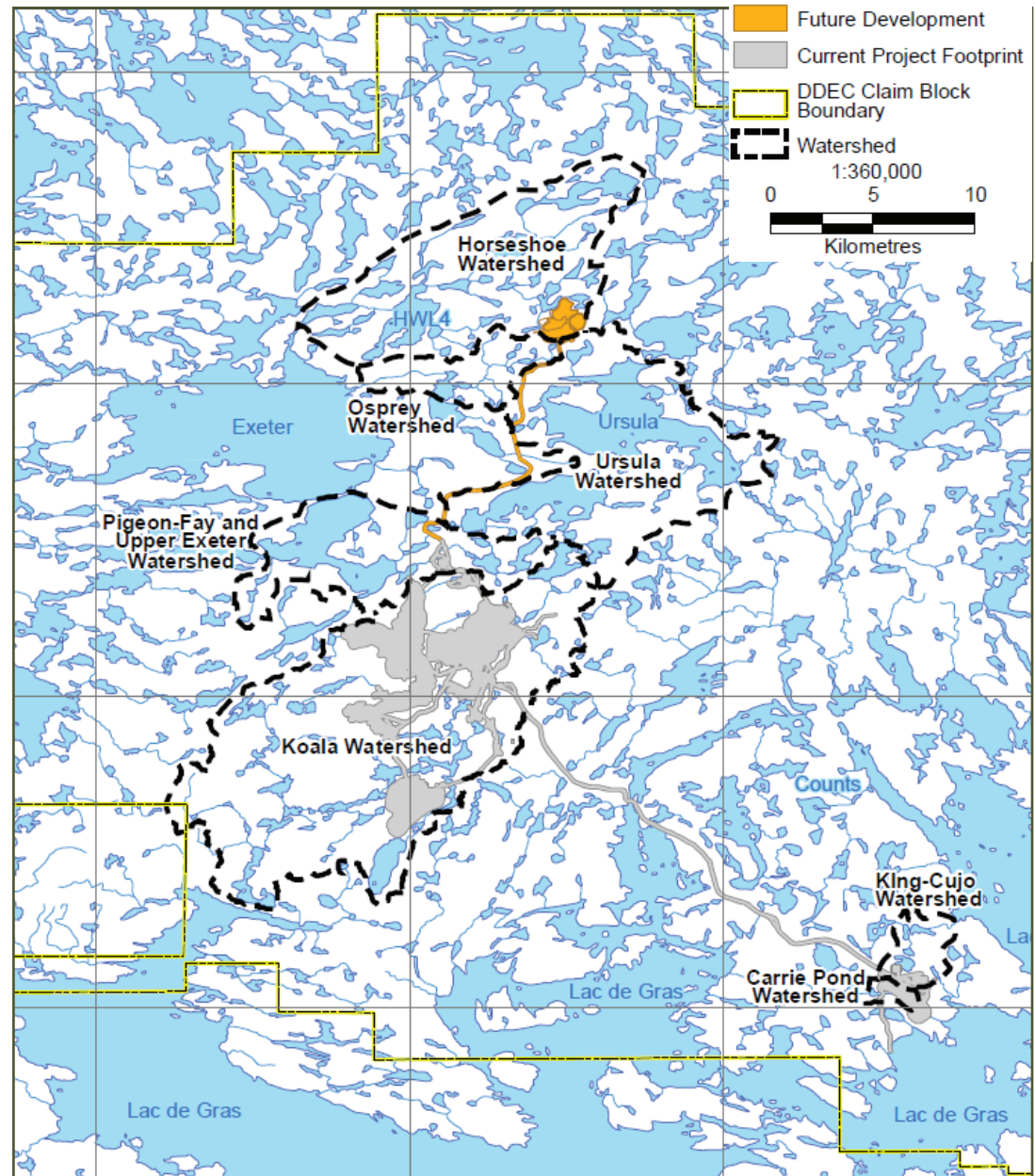
A second big source of water contamination is waste water from the Misery and Lynx sites into the King-Cujo watershed.

AEMP Monitoring Results

Each year Dominion Diamond reports the results of its AEMP to the Wek'eezhii Land and Water Board (WLWB). They give the highlights in its Environmental Agreement and Water Licence Annual Report. Water quality has been monitored in the Koala watershed for 20 years.

How mining affects water quality in the Koala and King-Cujo watersheds is shown in Table 10. Carrie Pond is not included because of lack of data. Fluoride was listed for the first time in the AEMP in 2017, based on our recommendation.

Figure 2: AEMP Reference Lakes and Outflow Streams



WATER QUALITY RESULTS

Every year we review the AEMP data for any changes. The results are given in Table 2. Overall, amounts of each water quality item are still too high. However, compared to the last three years, big increases were not seen in 2017. Local changes in water quality in the receiving lakes and streams still are caused by waste water from Ekati.

SEDIMENT QUALITY RESULTS

As directed by the WLWB, for the first time a sediment corer replaced the Ekman dredge as the main sampling tool for sediment. The corer takes a column sample. It keeps the layers of sediment in place, without mixing. This means that new sediment can be clearly seen from the older sediment. This way it gives a better idea of what is happening now.

Some levels have gone up in both Koala and King-Cujo watersheds. Uranium increased in Cujo Lake. Selenium is the biggest problem. Amounts in Leslie Lake are high. In Moose Lake levels are close to the limit. The company thinks the Selenium Response Plan will take care of this problem. However, the response plan is for water quality not sediment. Where does the selenium come from? Probably from LLCF discharge. Next year's fish tissue tests may tell us if the current plan is taking care of bottom-feeding fish.

Biota

Downstream of the LLCF and in Kodiak Lake, algae and tiny animals have been changing. We don't know yet if these changes are bad for plant-eating fish.

AEMP Response Plans

Version 2 of the Aquatic Response Framework was approved in December 2017. For the first time, biology data will be compared to new action levels. Version 3 was sent in March 2018. Dominion Diamond plans to update the framework every 3 years.


Biological response plans

Plankton & Benthos Community Composition was approved by the WLWB in July 2017. For 3 years, action levels for tiny plants and animals were exceeded in 3 lakes. The company thinks the changes are caused by nutrient increases. They developed the Nitrate and Phosphate Response Plans to take care of that problem.



Two rock pond filter dyke

Table 2: Mining effects on water quality flowing through the Koala and King-Cujo Watersheds

<div>  Flow from effluent source to ultimate receiving lake in watershed </div> <div> <ul style="list-style-type: none"> ● increased over time in comparison to reference lake/stream or different from a constant ○ elevated but not changing through time ◆ upper bound of 95% exceeded the SSWQO, water quality benchmark, or CCME guideline during ice-covered or open water season ★ indicates observed mean exceeded the SSWQO, water quality benchmark or CCME guideline during ice-covered or open water season </div>	Variables elevated in Koala watershed									Variables elevated in King-Cujo watershed			
	Long Lake Containment Facility → Lac de Gras									King Pond → Lac du Sauvage			
	Leslie	Leslie-Moose	Moose	Moose-Nero	Nema	Nema-Martine	Slipper	Slipper-Lac de Gras	Lac de Gras (S2)	Cujo	Cujo Outflow	Christine-Lac du Sauvage	Lac du Sauvage
Parameters Monitored													
pH	●	●	●	●	●	●	●	●	●	●	●	●	
Alkalinity	●	●	●	●	●	●	●	●	●	●	●	●	
Hardness	●		●	●	●	●	●	●	●	●	●	●	
Total Dissolved Solids	●	●	●	●	●	●	●	●	●	●	●	●	
Chloride	●	●	●	●	●	●	●	●	●	●	●		
Sulphate	●	●	●	●	●	●	●	●	●	●	●	●	
Potassium	●★	●	●	●	●	●	●	●	●	●	●	●	
Total Ammonia	●		●	●	●	●	●						
Nitrite	●												
Nitrate	○	○	○	○	○	○	○				●		
Total Phosphate-P	●◆	●	●◆							◆			
Total Organic Carbon	●	●	●	●	●	●	●	○		○	○	○	
Antimony	●	●	●	●	●	●							
Arsenic	●	●	●	●	●	●	●	●		○	○		
Barium	●		●	●	●	●	●	●	●	●	●	●	
Boron	●	●	●	●	●	●	●			●	●	○	
Molybdenum	●	●	●	●	●	●	●	●	●	●	●	●	
Nickel	●	●	●	●	●	●	●	●		●	●		
Selenium	●	●											
Strontium	●	●	●	●	●	●	●	●	●	●	●	●	●
Uranium	●	●	●	●	●	●	●	●		●	●		

This table is adapted from the AEMP report with additions resulting from the Agency's review of the monitoring results.

Water Quality response plans

The Koala Watershed Water Quality Model was updated in 2017. It can better predict future amounts for water quality. It forecasts that all variables will be lower after PK is placed into Panda and Koala pits. This will happen after 2020.

Average amounts of water quality items, except for phosphorus, have been the same or lower.

Nitrogen: The updated plan was approved by the WLWB in January 2018. It adds action levels for nitrite. It also improves control of nitrogen sources.

Phosphorus: Action levels were exceeded in Leslie Lake under ice. This happened in April 2015 and 2017, but not 2016. The phosphorus plan was changed and sent in October 2017. It is waiting for a WLWB decision (as of spring 2018).

Chloride: Action levels were passed in Leslie Lake under ice in April 2015 and 2017, but not 2016. The chloride plan was approved in July 2017.

Selenium: Low action level was triggered under ice in Cujo Lake in 2016. An updated version of the plan was approved by WLWB. It changes action levels. It also adds ways to control selenium sources. Now Dominion Diamond is making more changes. It will include actions for exceeding the medium level.

Dissolved Oxygen: Low action level was triggered under ice in Cujo Lake in April 2016 and 2017. The plan was sent in October 2017. It is waiting for WLWB review and approval.

Potassium: Medium action level was triggered under ice in Leslie Lake in April 2017. A new plan was sent in August 2017. The WLWB wants an updated plan. It should have a lower amount to trigger the high action level.

Potassium EQC Water Licence Amendment

Dominion Diamond found Misery ore processing to be the source of high levels of potassium. So it applied for a change to its Water Licence in July 2017. It wants to increase the allowed potassium levels.

During the Water Licence Amendment process, we stressed the need for caution. We recommended that Dominion Diamond make every effort to ensure the long-term potassium SSWQO is not exceeded in the receiving lakes. Any change to the potassium EQC should support this goal. The WLWB's decision is expected in summer 2018.

Sable AEMP Design Plan

Dominion Diamond's fish plan for the Sable AEMP does not include slimy sculpin. It favours large-bodied fish. Even these are monitored only 'as needed.' Maybe no fish would ever be monitored downstream of Sable pit. This is very different from the fish program done for the Koala and King-Cujo watersheds.

The WLWB did not approve the Sable plan for fish monitoring. It was concerned about the baseline for fish in Horseshoe watershed. And what about monitoring small-bodied fish? As a result, harvestable fish were sampled in 2017. The Board also wanted slimy sculpin included in the next version of the plan.

OUR ASSESSMENT

We are happy there are no new water quality problems to report. However, we think the sediment quality in lakes near the LLCF is poor.



The plans that deal with early warning of changes in the water environment are getting better. The chloride plan's lead times are a very good change. It should be standard procedure for all response plans.

We think that using both sculpins and nicer fish species is the best way to monitor fish communities. Meanwhile, Dominion Diamond feels that a fish monitoring program for Horseshoe watershed is not possible, as the project will operate for only 6 years. As for slimy sculpin, taking samples every 3 years helps fill the 6-year gap between other fish monitoring years. Bottom-feeding sculpin are eaten by larger fish. Testing sculpin can show how the food chain reacts to contamination. We recommend that Dominion Diamond use one approach for its fish monitoring design for all watersheds on its property.

AEMP lakes are not now used as drinking water sources. Water taste has not been part of response plans. After closure, however, land users may wish to use these lakes for drinking water. We believe that drinking water standards should be part of response plans. This includes chloride standards. The WLWB is requiring Dominion Diamond to discuss the drinking water quality objective for lakes downstream of reclaimed LLCF and Misery development in the next version of the ICRP.

REGIONAL MONITORING & CUMULATIVE EFFECTS

HIGHLIGHTS

-  GNWT Environment and Natural Resources (ENR) released a new Bathurst Caribou Range Plan discussion paper for public comments.
-  The caribou Zone of Influence Technical Task Group will write a new guidance paper.

ACTIVITIES 2017-18

Bathurst Caribou Range Plan

The Bathurst Caribou Range Plan, led by ENR, is a guide for decision-makers, companies and communities. The plan helps manage land activity in a way that supports the recovery of the Bathurst herd. We took part in a tech workshop in June 2017. We talked about comments made on the draft range plan. The team changed the plan and in January 2018 sent a draft for public review. Most of our early concerns were answered. We think the plan will be finished in 2018.

Zone of Influence Technical Task Group

After a 3-year pause, the Caribou Zone of Influence Tech Task Group met in October 2017. This group develops guides on how to watch caribou around diamond mines to see if they are avoiding the mine sites. Changes to sharing data were discussed. ENR promised to revise the 2015 guide.

Caribou Research Agenda

Dominion Diamond held a workshop in December 2017. It was to decide on research priorities in order to find out why the Bathurst caribou herd is getting smaller. The workshop said food, changing weather, and caribou health are the main priorities. Dominion Diamond is providing funds of \$500,000 over 3 years to study the Bathurst caribou within their entire range. Tender calls for proposed caribou research projects are planned for late summer 2018.

Grizzly Bear Monitoring

Dominion Diamond and Diavik jointly ran a grizzly bear DNA hair-snagging program in 2017. They also did this in 2012-13. This regional study looks at population status and finds long-term trends.

Cumulative Impacts Monitoring Program (CIMP) Disturbance Map

The Cumulative Impact Monitoring Program is part of GNWT-ENR. They have made an NWT Landscape Change Viewer. It has a map that lets you turn on or off some types of land disturbance. The types go from forest fires to mine developments and exploration. To see the map, go to the ENR website, click on Monitoring, and look for CIMP.



Vegetation at the Ekati mine site

TRADITIONAL KNOWLEDGE

HIGHLIGHTS

- 🐾 Ekati Mine Engagement Plan updated. It includes triggers for Traditional Knowledge (TK).
- 🐾 Land use permit application approved for the Ekati Culture Camp site.
- 🐾 Aquatic Effects Monitoring Program for the Sable project lacks built-in TK.

ACTIVITIES 2017-18

Ekati Mine Engagement Plan

This plan guides Dominion Diamond's outreach activities with community people. It talks about how to get people involved in projects that include TK. We made comments on the new version of this plan. It was approved by the Wek'eezhii Land and Water Board (WLWB) in October 2017. The new version has triggers for TK input and ways to consult.

Use of Traditional Knowledge in Operations

Traditional Knowledge Elders Group

The Report of Environmental Assessment (REA) for the Jay Project recommended that Dominion Diamond set up a Traditional Knowledge Elders Group (TKEG). They could help deal with impacts on caribou, land, water and fish. The knowledge gathered can be used for the entire mine site.

The TKEG held three meetings in 2017-18. In April elders talked over the reasons for the group. They asked that the TKEG paper include these sentences.

- *"The TK input will include the Project, and will be applied to the Ekati Mine site to further mitigate impacts on caribou, water, land and fish."*
- *"Respecting intellectual property rights, all use and publication of TK information shared and collected by Dominion Diamond through the TKEG will follow appropriate community TK protocols, where applicable."*

The elders talked about fishing methods for use in the Jay Project fish-out. They learned about the Community Caribou Engagement Program. There was more talk about the Jay Road construction and design, as well as caribou crossings and the road crossing at the Lac du Sauvage esker. The elders toured Sable, Lynx and Misery pits.

In September and December, the elders talked about TK, wildlife research, and the water and fish programs. They gave Dominion Diamond important information on waste management, air quality and dust, the Caribou Road Mitigation Plan, and the Interim Closure and Reclamation Plan. They also visited Sable and Jay road caribou crossings.

Environmental Monitors

Dominion Diamond gives Aboriginal communities a chance to find out about Ekati environment programs and to share TK. During this reporting period, community members watched for raptors that tried to nest close to Misery, Lynx, Pigeon and Sable pits. They were also wildlife monitors for the grizzly bear DNA sampling.

TK in Sable AEMP Design Plan

From March to October 2017 community members took part in a fish study. They used local knowledge to capture, sample and release large-bodied fish. The data will be used for studies in Sable AEMP lakes.

Culture Camp

A Land Use Permit to make a TK Culture Camp was approved by the WLWB in June 2017. Aboriginal Society members recommended the camp location. It is east of an esker running between Paul and Duchess Lakes. Up to 30 people can use the camp. It will be in operation for 30-40 summer days with spring and fall visits of 2 weeks each.

Jay Fish Offsetting Plan

Dominion Diamond has been working with communities and Fisheries and Oceans Canada to develop a plan to bring Inconnu (coney) back to the Yellowknife River. Dominion Diamond has also met with a number of community groups to discuss other fish enhancement projects.

Native Seed Program

Students were chosen by their schools to help collect seeds from native grasses for planting at the Long Lake Containment Facility. This program gives young people experience working at the mine, while they take part in reclamation.

Site Visits

This year Dominion Diamond hosted a number of groups for site visits. These included high school students and their escorts from 4 communities. The groups visited the mine and shadowed jobs with the process plant, training, and security.

Community-Based Traditional Knowledge Projects

Tłıchǫ Boots-on-the-Ground Caribou Monitoring

Boots-on-the-Ground is a caribou monitoring program. Elders and caribou hunters use tradition and knowledge to judge the condition of the Bathurst caribou herd's summer range. They focus on caribou and their habitat, predators, and industrial disturbance. The 2016 results report was out in August 2017.

OUR ASSESSMENT

The Ekati Mine Engagement Plan continues to improve. However, it lacks information about engaging with us and with regulators. There is no mention of how Dominion Diamond plans to work with other stakeholders. We have recommended Dominion Diamond include this item in any future Engagement Plan. It should tell how engagement will be done with all stakeholders.

In January 2017 the TKEG approved a TK management framework. It tells about Dominion Diamond's plan to collect, store, manage, and use TK. The company has promised to work hard to improve the TK framework. However, we are still concerned that the plan does not show how TK is used in environment management.

In Dominion Diamond's reporting on Traditional Knowledge Projects and Community Outreach it appears that some long standing TK programs have not been reported on this year. It is unclear whether these projects have been discontinued. The Agency recommends that Dominion Diamond report on the status of all TK projects in its Annual Report and identify those, if any, that have been discontinued.

Some long standing TK programs have not been reported on this year. Have they been cancelled? We ask that Dominion Diamond report on the status of all TK projects in its Annual Report and name any that have been cancelled.

Dominion Diamond says that the TK Culture Camp is *"to help maintain a connection with disturbed areas of land and restore Traditional Knowledge transfer between generations about the area affected by diamond mining as per the intent and requirement of Measure 7-2 of the REA."*

We understood that the reason for an on-the-land camp was also to use TK to check on mine-caused disturbance to land and wildlife. It would help to know if the TK Culture Camp could be or will be used for this purpose.

As currently planned, fish monitoring is the only chance for TK input on the impacts of the Sable Project. YKDFN recommended that Dominion Diamond collect TK information on water quality. The WLWB directed Dominion Diamond to say how it will include TK in the Sable AEMP other than fish monitoring.

Dominion Diamond was also told to explain how aboriginal groups, particularly YKDFN, were engaged on the Sable AEMP design. The WLWB was unsure whether Dominion Diamond had adequately reached out to YKDFN. Were they engaged directly? Do concerns remain on TK use for Sable AEMP? We would like to see these questions resolved to the WLWB's and YKDFN's satisfaction.



The Agency meets with Municipal Council Members in Kugluktuk, NU, May 2017.

AIR QUALITY

HIGHLIGHTS

- 🐾 Air Quality and Emissions Monitoring and Management Plan for the Jay Project approved by GNWT.
- 🐾 GNWT recommended an interim dustfall objective for the Ekati mine site.
- 🐾 Dust along Lynx Road exceeded the GNWT goal.

ACTIVITIES 2017-18

The Ekati Air Quality Monitoring Program (AQMP) started in 1998. Results are reported every three years. The 2017 AQMP tells about air quality around Ekati between 2015 and 2017.

Weather Stations

Weather data at Ekati is taken daily from the lake weather stations and sometimes from the airport. The stations record temperature, humidity, rain or snow, and wind. Some wind data from Koala is missing due to sensors freezing in winter. Results from each station are reported yearly as part of the Aquatic Effects Monitoring Program (AEMP).

The Ekati area is fairly windy. The winds are mostly from the east or east-northeast. Historical temperatures from 1948 to 2016 show that the region is warming steadily. Annual rain/snow for all three years is below the 1995 to 2017 average. 2017 was the driest year on record.

Air Emissions

Every year Dominion Diamond calculates and reports air emissions resulting from burning diesel fuel. From 2015 to 2017 greenhouse gas (GHG) emissions increased by 14% (from 2012-2014) and 28% (2009-2011). Dominion Diamond says this may be due to the spread of mining activity and making new pits.

Ekati makes about 15% of the total CO₂e emissions in the NWT. Dominion Diamond reports that it has been trying to reduce energy use and GHG emissions at Ekati. They have changed to LED lights; done composting; had less idling of equipment; and urged people to turn off lights and turn down heat in empty rooms.

Partisol Samplers

Partisol samplers measure Total Suspended Particulate (TSP). They are installed at Grizzly Lake and Cell B air quality stations. One that measures fine Particulate Matter (PM_{2.5}) is installed at the Continuous Air Monitoring Building. On most sampling days, TSP amounts were higher at the Grizzly station. All daily amounts were below the 24-hour GNWT standard.

Continuous Air Monitoring (CAM)

A Continuous Air Monitoring (CAM) station is located at the Polar Explosives site. CAM results from 2015 to 2017 show that amounts of dirty air were higher in the winter due to heating and burning of gas. This is the same as other years. All values were below the GNWT standards.

Levels of PM_{2.5} were higher from May to September. This was due to diesel fuel, wildfire smoke, and dust. Levels of TSP are higher from April through August. This is dust from roads, material handling, and blasting. Numbers at the CAM building went above GNWT standards when there was smoke from wildfires. Because of this, when smoke is visible, measures are not compared to the standard. All other PM_{2.5} and TSP values were below the standards. There are still some problems with data. Mechanical problems from October to December 2017 resulted in data for only 58% of the year.

Dustfall Monitoring Program

Dust is measured at distances away from haul roads, LLCF and the airstrip between June and September. Each station has 2 canisters. One measures sulphate and nitrate. The other measures total metals. During 2015 to 2017, the number of dust sampling stations increased to 31. New samplers were added along the Lynx, Jay, and Sable Roads. Two stations are at background sites.

Dust was greater close to the haul roads. Dust samples from over 1 km away from the site were like the background values. Dust in 2017 was higher than in other years due to more vehicle traffic. From 2015 to 2017 there were four places along the Lynx road where the dust objective was exceeded.

Snow Chemistry Sampling

Snow samples are taken in a ray pattern away from the mine site. Most snow core sites are next to lichen sampling plots so they can be compared. Snow is checked for the same things as in the water quality program.

Snow data for 2017 shows that TSP and metals are highest in the area near the mine. The main exception was at sampling station AQ-06. It had high contaminant values. Dominion Diamond notes that during sampling of AQ-06, they could see dust in the nearby snow. The sample was cloudy.

Lichen Sampling

Lichens are important signs for air quality. They are used to monitor for dust and metal in the air. In August 2017 plots were sampled for the lichen eaten by caribou.

The 2017 results show that elements in lichen tissue decreased sharply with distance from the mine. This is the same as snow tests. The 2017 data also show a decrease in the elements in lichen from other years. It is not clear why this happened. No relationship between lichen and soil metals was seen. Greater levels of dust seem to match increased elements in lichen.

Dust Suppression

We have concerns about the effect of dust on plants and caribou. As a result, Dominion Diamond has done studies on how some dust suppression methods work. It has focused in recent years on EnviroKleen. In 2015 and 2016 small pilot studies showed good results. In 2017 they treated the entire Misery Road, except for some areas where water was used.

Early reports say that *“EnviroKleen has been demonstrated to be an effective dust suppressant, able to maintain a sustained suppression of dust with repeat applications over the year”* The company is looking at ways to improve the work. Soil sampling showed that EnviroKleen may be found 10 m off road. However, it is not expected to be harmful. EnviroKleen is non-toxic in low amounts and does not dissolve in water.

Dustfall Objective

The Report of Environmental Assessment for the Jay Project required the GNWT to develop a Dustfall Objective. It should reduce dust-related upsets for caribou. In May 2017, ENR recommended a dustfall objective. This value applies to Ekati.

The Air Quality Emissions Monitoring and Mitigation Plan (AQEMMP)

Air Quality and Emissions Monitoring and Management Plan (AQEMMP) for the Jay Project was approved by ENR in May 2017. The AQEMMP will be joined with the current AQMP in 2018.

OUR ASSESSMENT

In general, the air quality results for the period of 2015 through 2017 were the same as older data. There are still some issues with data capture due to equipment problems. Repairs seem to happen quickly most of the time.




We are encouraged by the early results of the EnviroKleen tests. The full report is taking too long. During our 2017 site visit, we saw that using EnviroKleen on the Misery Road was much better than using only water. We recommend that Dominion Diamond use EnviroKleen on all mine-site roads and continue to work on how best to apply this product.



Incinerator building at Ekati site

WASTE ROCK

HIGHLIGHTS

-  Sable Waste Rock Piles design and Pigeon Waste Rock Piles expansion proposals approved.
-  Geotechnical investigation of the Misery Waste Rock Piles started.
-  Wek'èezhìi Land and Water Board (WLWB) approved the 3-Year Seepage Report. A number of directives address concerns raised.

STORAGE AREAS

Waste Rock Piles (Waste Rock Piles) are designed to manage the large quantities of waste rock dug up when mining. These piles will stay in place long after the mine is closed. They are designed to be physically stable and promote freezing.

There are currently five Waste Rock Piles at the Ekati mine. A sixth one is planned for the Jay Project. In addition, there is an area for rough rejected kimberlite. A summary of each storage area is in Table 3.

DESIGN, MANAGEMENT AND STUDIES

Sable Waste Rock Piles Design

The Sable Project is about 20 km north of the Ekati main camp. About 103 million tonnes (Mt) of waste rock will be left over after the project is closed.

A final design plan for the Sable Waste Rock Piles was sent to the WLWB in May 2017. It proposed building two storage areas. One has room for 55 Mt. It would be full in 2020. The other has room for 57 Mt. It would be full in 2022. As part of the design, Dominion Diamond would install five ground temperature cables (GTC). They keep track of the long-term heat of the Sable Waste Rock Piles.

The Sable Waste Rock Piles design was approved by the WLWB in August 2017. As a condition, the WLWB directed that no waste rock be deposited within 100 m of any water body at the Sable Project. This rule might be changed if a good setback distance is defined for seepage monitoring. The setback of 100 m is still in effect.

Pigeon Waste Rock Piles Expansion

The Pigeon Waste Rock Piles design was first approved in 2014. It would hold 32 Mt of waste rock. In June 2017, Dominion Diamond sent in a Waste Rock and Ore Storage Management Plan. It asked to nearly double the size of the Waste Rock Piles. At the same time, they proposed a different cover for the final Pigeon Waste Rock Piles. It would have glacial till directly over the waste rock. In other Ekati Waste Rock Piles the cover is 5 m of granite.

Some of the waste rock from Pigeon pit is potentially acid generating (PAG). It can't be easily separated from other waste rock. So, Dominion Diamond proposed that all waste rock from the Pigeon pit be treated as PAG. This would help manage any Acid Rock Drainage (ARD) and metal leaching (ML). We agree this is a nice careful approach. However, we are concerned about this plan for ARD and ML. Future heat and chemical action of the larger Pigeon Waste Rock Piles is uncertain. The predictive model is too simple and unreliable.

The Pigeon Waste Rock Piles expansion and cover designs were approved by the WLWB in September and December 2017. As directed by the WLWB, Dominion Diamond held a workshop in February 2018 to begin talking about concerns raised by us and others.

Jay Waste Rock Piles Co-placement Study Design

Work on the Jay ore deposit was approved in July 2017. One condition was a study design for the Jay Waste Rock Piles. The study design is meant to find the best and safest way to place the PAG and non-PAG rocks. The study design was submitted to the WLWB for approval in October 2017.

Lynx Pit Rock and Jay Road Construction Plan

In June 2017, the WLWB approved the road construction plan for the Jay Project. It allows Dominion Diamond to build roads using granite from Lynx pit. Later that month, Dominion Diamond told the WLWB they had found that 1.5 Mt of the waste rock was not granite but diabase. The company thinks this rock is safe and wants to use it on the Jay road. In our review, we noted that the way Dominion Diamond calculated the safety of the diabase may not be correct. The WLWB has not met to consider Dominion Diamond's request at this time.

Misery Waste Rock Piles Study

A study of the Misery Waste Rock Piles was started by Dominion Diamond in February 2017. They drilled holes through the waste rock to the original ground surface. The content of the boreholes was analyzed. Samples of water, ice and rock were taken for chemical analysis. Then heat and moisture monitoring gear was installed. Findings from the study will be used for closure and research planning.

Seepage Monitoring

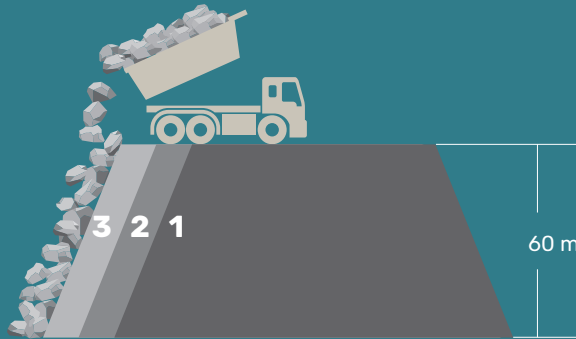
As a condition of their Water Licence, Dominion Diamond is required to monitor seepage from the Waste Rock Piles at Ekati. The findings are reported yearly in the Seepage Survey Report. Every three years Dominion Diamond must do a detailed review of seepage trends over time.

Dominion Diamond submitted the 3-Year Seepage Report in March 2017. It compared data and trends to other years. The WLWB decision on the report was released in December 2017. It had some items that were to be addressed in the 2017 Seepage Survey Report. We will give a summary of the 2017 Seepage Survey Report in next year's Annual Report.

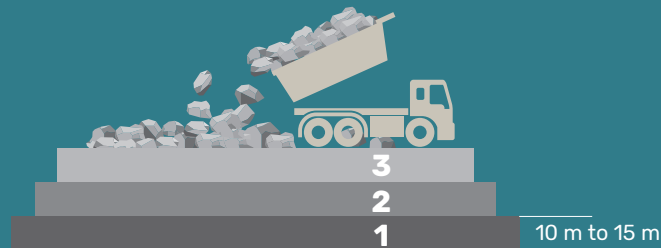
Waste Rock Placement Methods at the Ekati Mine

Dominion Diamond's proposed construction methodology for the Jay waste rock pile differs from the method currently used at Ekati mine of building the WRSA from the original ground surface up in horizontal layers or lifts. The proposed approach would see diagonal layers built by end-dumping waste rock from the full height of the pile.

Placement from full Waste Rock Piles
Proposed for Jay waste rock storage area



Placement in horizontal lifts
Used at other waste rock storage areas



OUR ASSESSMENT

How do you manage waste rock and processed kimberlite? This is a big challenge for closing and reclaiming the Ekati mine. The large waste rock piles will be part of the Lac de Gras landscape long after mining has ended. After they are completed, it will be hard and costly to change them. It is important to get the design right.

During our review of the Jay Waste Rock Piles Co-Placement Study Design, we focussed on Dominion Diamond's idea about the waste rock making any acid drainage safe. This could mean the types of rocks are put in the wrong place. It could allow acid drainage and metal leaching to disturb the land around it.

How do you figure the neutralizing potential of waste rock? This needs to be resolved right away. Until it is, we strongly urge Dominion Diamond to use the safer way.


Cold ground and permafrost can slow acid drainage and metal leaching. Dominion Diamond first planned to install five GTCs in the Sable Waste Rock Piles. Recently Dominion Diamond said that ground temperature cables are not needed, because the pile has only granite and diabase. We have strong concerns with this change. We urge Dominion Diamond to think about adding more GTCs.

We are concerned that the future of Waste Rock Piles at Ekati is unknown. The models used are too simple or lack monitoring data. The February 2018 workshop on this topic was useful. However, there was no real talk on the models. So, questions still exist. We hope these concerns can be addressed in future plans.

Finally, we are pleased to see progress on finding and studying seeps from Waste Rock Piles. This work will help in assessing the impacts Waste Rock Piles may be having on the nearby land.





Table 3: Ekati Mine Waste Rock and Coarse Kimberlite Rejects Storage Areas

	Panda/Koala/ Beartooth	Fox	Sable	Pigeon	Coarse Kimberlite Rejects	Misery/Lynx	Jay
Operational Status	Complete	Complete	Active	Active	Active	Active	Future
Rock Types Contained	Granite, Diabase	Granite, Diabase, Kimberlite	Granite, Diabase	Granite, Diabase, Metasediment, Till	Coarse Processed Kimberlite	Granite, Diabase, Metasediment	Granite, Diabase, Metasediment
Volume (million tonnes)	169	214	103 (planned)	50 (planned)	37 (ongoing)	97 (ongoing)	155 (planned)
Total Area (Ha)	417	313	130	66	97	145	219
Other Features	Landfarm, Solid Waste Landfill	None	None	None	None	Solid Waste Landfill	None



EXPANSION PROJECTS

HIGHLIGHTS

-  Water licence for Jay Project got Minister's approval in July 2017.
-  Jay Project early works road and support buildings mostly finished in fall 2017.
-  Updated plans and reports on Jay and Sable project water licences submitted and reviewed in late 2017/18.
-  WLWB finished amendment review of Misery Underground Project in February 2018. Water licence approval expected by fall 2018.

Jay Project

The Jay Project involves mining ore from the Jay Pipe. It is located under water on the west shore of Lac du Sauvage. The kimberlite pipe will be accessed by building a U-shaped dike in the lake. Water behind the diked area will be pumped out. Trucks will take the ore from Jay pit along 7 km of road to the Misery haul road and then to the main Ekati site. The new Jay road cuts through the Lac du Sauvage esker.

The Jay Project also requires a link to the powerline and a new waste rock storage area. Groundwater and surface runoff will be pumped to Misery or Lynx pits for storage and management. The Jay Project is expected to extend the life of Ekati mine to 2036.

The Wek'eezhii Land and Water Board (WLWB) sent the new water licence to the Minister of ENR in May 2017. Significant changes to the water licence were noted in their Reasons for Decision. They kept the current Ekati licence expiry date (2021), though Dominion Diamond asked for 2036. The WLWB increased the number of monitoring sites. They also set Total Suspended Sediment limits during dike construction at lower levels than Dominion Diamond wanted. The Jay Project water licence received Ministerial approval on July 6, 2017. The Land Use Permit (LUP) was issued.

Sable Project

Dominion said it would go ahead with the Sable Project in September 2015. Sable Pit is located 27 km by road north of Ekati main camp. The plan requires 19 km of new road to the pit. The water in Sable Lake must be removed. Then Sable pipe would be developed as an open pit. Two Rock Lake would be used as a settling pond.

The Sable project road was completed in late summer 2016. Work on the Sable site in 2017 included:

- building the Two Rock Dam, pads and laydown areas
- building the Two Rock Filter Dike and fuel tank storage facilities
- dewatering Sable Lake and Two-Rock Sedimentation Pond

Misery Underground

In August 2017, Dominion Diamond applied for a water licence change to do underground mining at Misery Pit. If approved, the project would provide about three years of ore. It does not need changes to the mining facilities. The main change would be to management of groundwater and waste water.

The WLWB held a public hearing on February 7, 2018. We did not make any comments. Our main concerns were addressed during the tech session. The WLWB will likely send a draft water licence to the Minister of ENR for approval in summer 2018.

Exploration for New Ore

Dominion Diamond still explores on their Ekati lease to seek other ore bodies. Drilling of six exploration holes is planned for places near the main Ekati site in summer 2018.

Also, Dominion Diamond got a land use permit from Mackenzie Valley Land and Water Board in July 2017. It allows diamond drilling at 25 places each year. It also allows up to 200 drill samples from 2017 to 2022 in the Glowworm Lake area.

OUR ASSESSMENT

We feel that new pits at Jay and Sable and underground mining at Misery Pit make a major land increase for Ekati mine. Both projects are in places that were only lightly touched by mining work. Now there may be impacts to the habitat of wildlife and fish well away from the current mine. The new roads will act as barriers to movement of wildlife and will cut important eskers.

The new Jay haul road cuts through the Lac du Sauvage esker. This area is important to caribou movement and migration. The Sable road serves new mining activity in areas near Ekati mine that are much used by caribou. We still urge Dominion Diamond to make sure impacts to these new areas are small.

CLOSURE PLANNING

HIGHLIGHTS



Timing for updated Interim Closure and Reclamation Plan has been set.



Reclamation Research Plan to be revised as part of the updated ICRP.



Reclamation of the Old Camp area mostly finished.

Reclamation research and test area of the Long Lake Containment Facility, Cell B, at the Ekati site.

CURRENT CLOSURE PLANNING

The Wek'èezhìi Land and Water Board (WLWB) requires Dominion Diamond to have an approved Interim Closure and Reclamation Plan (ICRP) during active mining. They also must report each year on reclamation. (Reclamation is returning the mine site to a healthy environment for people.)

The current closure plan for open pits includes flooding and connecting underground mines. This makes pit lakes which connect again with their watersheds. Flooding may take 35 years to complete. Except for the Jay pit, berms will be built around the pits to keep wildlife away. At the Jay pit, the dike will be broken so the pit can reconnect to Lac du Sauvage.

The waste rock storage areas (Waste Rock Piles) stay in place after the mine closes. They will be covered with rock. Plants should grow on their own. The design has a stepped profile and a flat top. That prevents snow build-up and helps with permafrost. The permafrost should control acid drainage and metal leaching.

The Long Lake Containment Facility (LLCF) will be re-shaped and capped with rock and plants. It will reconnect with the watershed by drainage channels and ponds. All dikes and dams within the LLCF will be broken at closure so water can flow in.

All buildings, storage tanks, power lines, water pipelines and other structures are to be removed. They will be buried or shipped away. Roads, lay down pads, and the airstrip will stay in place. They will be made safe for people and wildlife to use.

FINANCIAL SECURITY AND CLOSURE PLANNING

Financial Security

The amount of financial security required at any time during the life of Ekati mine should be equal to the total cost of closure and reclamation. The amount held by the GNWT in December 2017 was \$285 million. This represents an increase of \$8 million from December 2016.

In January 2018, Dominion Diamond asked for changes to the reclamation security. The requested changes result from:

- Less exposed metasediment on the Misery Waste Rock Piles (decrease of \$7.9 million)
- An increase in flooding due to a bigger Pigeon pit (increase of \$735,000).

If approved, these changes would result in a decrease of \$7.2 million to the current security. The WLWB has not yet made a decision. The outcome will be reported in our next annual report.

Split Between Land and Water Reclamation Security

Most reclamation security is held by the GNWT under Ekati's Water Licence. In March 2017, ENR recommended a change to this practice. They suggested that reclamation costs for the Jay Project be assigned to Ekati's Land Use Permits for land and Water Licence for water.

Holding the land and water securities separately would increase the admin costs. It would make tracking more difficult. Dominion Diamond has given the details needed to split the Jay Project reclamation securities. However, it urged ENR to work with the GNWT Department of Lands to find a way to hold all the securities under the Water Licence.

Interim Closure and Reclamation Plan

The current version of the Ekati mine ICRP was approved in 2011. There have been many changes to closure planning since then. So, we recommended in December 2016 that Dominion Diamond update the ICRP. The WLWB agreed with us on the need to update the ICRP. They directed Dominion Diamond to submit an updated version, along with an updated Reclamation Research Plan, by July 2018.



Reclamation research area, Long Lake Containment Facility, Cell B, with waste rock storage area in the distance

RECLAMATION ACTIVITIES IN 2017

A Closure and Reclamation Plan for the Old Camp site was approved by the WLWB in 2014. Reclamation activities were started that year. There was excavation and removal of processed kimberlite and liner materials. Grading promoted good drainage in the excavated areas. In 2015, a channel to direct water through the reclaimed Phase 1 Pond was made. There was also removal of debris and more grading to promote drainage. In 2017, the work included moving about 2,100 cubic meters of contaminated soil to the Ekati land farm. Then they did grading and roughing up of the Old Camp pad surface. A small amount of bad soil remains. It should be removed in 2018.

Water quality was monitored in 2017 at three places. All water samples fit the effluent quality criteria set by Ekati's Water Licence, except arsenic in one sample. A sampling program aimed at better understanding the source and fate of the arsenic is planned for 2018.



Old Camp site

Research and Planning

Reclamation research at Ekati is ongoing. It is a constantly changing process. It must adapt to new research findings and to changes in the mine, environment management, and the ICRP.

Research in 2017 centred on processed kimberlite (PK) in the Beartooth pit. They also studied closure water quality plans, planting of the LLCF and checking on plants.

Beartooth Pit and PK

Kimberlite slurry from the processing plant is discharged into Beartooth pit. The long-term plan is to reconnect the pit lake with its watershed. Research is trying to confirm that fine PK gets solid in the bottom of the pit. A sonar survey showed that the pit bottom has an even layer of solids. The current PK is about 140 m deep. That is 62% of the final pit amount, if 30 m of fresh water is kept above the PK.

Beartooth, Panda and Koala Pit Closure Water Quality

Dominion Diamond plans to seek approval in 2018 to deposit fine and coarse PK in the Panda and Koala pits. Water quality models are being developed to assess pit lake water quality after closure. Early results hint that several pit lake water quality items may exceed objectives over the long term. Based on these findings, Dominion Diamond plans to improve the models. These will help judge the long term mixing potential for these lakes.

Long Lake Containment Facility Research

Reclamation research continued in Cell B of the LLCF in 2017. They studied managing surface water to make erosion less and to keep the most water. They checked on existing plant tests and looked into best ways to plant. Tests on using compost material on the soil were expanded. Soil tests continued too, as well as other activities.

Vegetation Monitoring

Vegetation monitoring at various locations around the mine site took place as in previous years including the airstrip, South Airstrip Esker, rock pads and glacial till/lake sediment stockpiles.

Reclamation Research Slippage

Dominion Diamond was directed to update its Reclamation Research Plan. We are still concerned that research continues to slip behind schedule. However, we know that current closure and research planning is likely to change a lot based on the new ICRP. We look forward to reading the new reclamation research plans in 2018.



View of Old Camp
site, Ekati minesite

OUR ASSESSMENT

The WLWB's review of closure and reclamation planning at Ekati continues to be strong. We note the WLWB's decision to establish a July 2018 deadline for the revised ICRP and Reclamation Research Plan. We also note the Board's continued focus on ensuring the reclamation securities are large enough. Dominion Diamond's overall commitment to closure and reclamation is encouraging. However, the history of mines in the North shows that environmental costs should never be allowed to exceed the posted security.

In April 2014, Canada gave responsibility for managing NWT land and water to the GNWT. Water resources were then assigned to ENR, while land resources were assigned to the new Department of Lands. To decide on environmental liabilities is complex. Assigning reclamation securities separately to land or water makes it more complex. We agree with Dominion Diamond that having all reclamation securities under the Ekati Water Licence is best. We urge ENR to work with Lands to find a way for this to happen.

We think the lack of a single, complete closure and reclamation plan is a serious problem. So is the continued slippage of the research. The plan is now spread over a number of documents. This makes it harder to track progress and to understand any changes.

The updated ICRP and Reclamation Research Plan coming in July 2018 will be important in closure and reclamation planning at the Ekati mine. We look forward to taking part in the review of these plans.

We acknowledge Dominion Diamond's efforts to reclaim the Old Camp site. We look forward to reading a Reclamation Completion Report about how the site was reclaimed and the planned monitoring.

HOW ARE THE REGULATORS DOING?

HIGHLIGHTS

- 🐾 Fisheries and Oceans Canada (DFO) level of work in environmental regulation of Ekati was disappointing.
- 🐾 GNWT Environment and Natural Resources made valuable contributions to the regulatory process on the Misery Underground (MUG) and Potassium Effluent Quality Criteria (EQC) applications.
- 🐾 Wèk'eezhìi Land and Water Board (WLWB) ran complete, efficient processes for MUG and Potassium EQC Amendment applications.

Agency staff and directors taking a site tour of Ekati Mine, September, 2017.

THE REGULATORS AND OUR MANDATE

We are the public watchdog for environmental management at Ekati. We check on the operator as well as agencies that regulate the mine. Here are our comments on how well the regulators did in 2017-18.

OUR OVERALL ASSESSMENT

As in other years, the regulators as a whole were good at making sure that Dominion Diamond runs Ekati in a way that does not harm the environment. Regulators, during 2017-18, worked on:

- Jay Project Water Licence
- MUG and Potassium amendment applications
- Response plans
- Pigeon waste rock expansion
- Jay Project co-placement study
- Sable AEMP Design Plan

Government of the Northwest Territories

Department of Lands: We are pleased that regular inspections were made in 2017-18. The inspections for Ekati continue to be very well done.

Environment and Natural Resources (ENR): We are pleased that ENR is working on several important ideas. They include changes to the *Environmental Protection Act*, *Wildlife Management Act*, and *Waters Act*. ENR is also working on Air Quality Regulations and the Bathurst Caribou Range Plan.

Water Resources Division: Made important contributions to reviews of applications and plans. Made good use of consultants and staff expertise. They often gave tech information that was not provided by federal government groups. In our opinion, this input improved everyone's understanding of review topics. It ultimately benefits decision-making as a whole.

Conservation, Assessment and Monitoring Division: Administers Ekati's Environmental Agreement. Updating the agreement started in 2015. Likely to be done in summer 2018. It has taken longer than expected.

Wildlife Division: Continued to move forward with important work on caribou and on the Bathurst herd. Included changes to the *Wildlife Management Act* (Phase 2) and work of the Bathurst Caribou Range Plan.

Environment Division: Provided an interim Dustfall Objective in May 2017. Also worked on an air quality regulatory process for the NWT.

Indigenous and Northern Affairs Canada

Since INAC gave its land and water responsibilities to the GNWT, they have a much smaller role with Ekati regulation. The GNWT and INAC are working on the Environmental Agreement to fit the new situation. INAC will stay a signer of the Environmental Agreement. Each year we hold an Annual General Meeting and an Environmental Agreement Implementation meeting. Unfortunately, INAC did not take part in either meeting in 2017-18. We would welcome INAC to stay informed of our work on Ekati.

Fisheries and Oceans Canada

DFO gets all the documents for review. However, their response on review items has been poor. DFO did go to the MUG and Potassium EQC Amendment hearings, but gave little input. There have been several response plans triggered by the Aquatic Response Framework. DFO did not provide any feedback on these plans despite their expertise.

Overall, DFO's part in the regulatory process for Ekati in 2017-18 has been poor. We hope that with the new changes to the *Fisheries Act*, we can once again see full participation by DFO.

Environment and Climate Change Canada

Environment and Climate Change Canada's (ECCC) work in the regulatory process for Ekati has improved. We were pleased that ECCC commented on most review items related to its mandate. On the MUG and Potassium EQC Amendment applications, ECCC took an active part in the tech sessions and public hearing. However, we felt that in the Potassium EQC hearing the regulators would have benefited from greater involvement by department staff.

ECCC has sent out draft changes to the federal *Metal Mining Effluent Regulations*. These, if approved, would include diamond mining. ECCC plans to publish the regulations in summer 2018.

Wèk'eezhì Land and Water Board

We are pleased with the WLWB's handling of the Jay Project, MUG and Potassium EQC water licence and land use permit. Based on draft and final licences, it is clear that reviewers' comments were taken into account when making decisions. Also, we are pleased that the WLWB combined the MUG and Potassium EQC Amendment applications. This let us and others combine resources and reduce costs. The WLWB has also completed draft Guidelines for Adaptive Management. This is now out for review.

The WLWB completed updates on these guidelines:



- Guidelines for Effluent Mixing Zones (with GNWT)
- Guidelines for Closure and Reclamation Cost Estimates for Mines (with GNWT and INAC).

Our only concern with the WLWB in 2017-18 was that they held on to Dominion Diamond papers for weeks or months before sending them for review. We know that the WLWB must have some leeway on posting documents. However, there were times when delay in sending out time-sensitive documents caused a rush in the review process. This could have been avoided.



HOW IS DOMINION DIAMOND DOING?

HIGHLIGHTS

-  Dominion Diamond was generally responsive to written comments on management plans. Reluctant to talk about concerns during tech sessions and public meetings.
-  Dominion Diamond updated aquatic response plans according to WLWB directives and reviewer comments.

Reclamation research area, Long Lake Containment Facility,
Cell B, with waste rock storage area in the distance

Dominion Diamond continues to run the Ekati mine according to its licences and permits.

During the 2017-18 review period, Dominion Diamond was mostly responsive. However, we felt that Dominion Diamond's talk in meetings on MUG and Potassium EQC amendments was often dismissive and did not directly respond to the questions. We were disappointed by their lack of response to our requests that a back-calculated EQC for potassium be provided. This could show that the downstream water quality objective would not be exceeded. An adequate answer was provided only after the WLWB insisted. This meant we didn't have enough time to talk about the response. This type of delay is unfortunate. We hope it can be avoided in the future.

There were several waste rock storage area (Waste Rock Piles) reviews in 2017-18. We raised concerns about how modelling was done. We asked about neutralization potential. We also needed more data to predict possible impacts of the Waste Rock Piles on the environment. At our request, Dominion Diamond agreed to have a meeting on these topics. We noted that Dominion Diamond has made some changes based on our concerns.

They re-designed the Pigeon Waste Rock Piles cover so that all glacial till was covered. They improved how they calculate heat development inside the Waste Rock Piles. They also did a geotechnical assessment of the Misery Waste Rock Piles. We think these are positive acts. We look forward to working with Dominion Diamond to further improve Waste Rock Piles.

On the other hand, we were disappointed with another response. We asked them to improve monitoring of Waste Rock Piles seepage. They could install gear to measure the groundwater leaving the Waste Rock Piles piles through the thawed active layer. This is critical information. It would help when assessing the impact of Waste Rock Piles on the environment.



Animal burrow on Jay esker

RECOMMENDATIONS

TO: DOMINION DIAMOND (TOPIC - WASTE ROCK MANAGEMENT)

1

Dominion Diamond use 'Effective Neutralizing Potential' for determining the availability of neutralizing potential in waste rock.

DOMINION DIAMOND RESPONSE:

The Neutralizing Potential correction factor proposed by IEMA in the comments from the Waste Rock and Ore Management Plan (WROMP) Version 8.0 (ENP was temporarily calculated by subtracting 10 kg CaCO₃/t from the measured bulk NP (neutralization potential) for each sample, based on the conclusions presented in MDAG [1995]) is not appropriate given the significant limitations associated with the MDAG work. The method for assigning effective NP presented in MDAG (1995) was based on the outcome of long-term testing conducted on only one sample (MCH3 220-258). By suggesting that this approach be applied on a broad scale, it is implied that the factor to correct for effective NP is the same for each rock type. However, no basis is provided for this assumption. The method proposed in MDAG (1995) (and promoted by IEMA) does not account for rock type specific factors that may influence effective NP including, but not limited to, the mineralogical source

of NP, mineral textures, and mineral reaction rates. Furthermore, based on visual mineral textures observed in each rock type, the rate of reaction of minerals may also vary according to factors relating to grain size, and mineral availability, which the approach proposed by MDAG (1995) and requested by IEMA does not address. Therefore, given the different mineralogical compositions and textural characteristics of each rock type, it is not appropriate to assign a single corrective factor for effective NP to all rock types, even more so when the proposed value has virtually no technical underpinning and is based on the test results from one single sample.

Currently, rock types are evaluated with respect to acid generation potential using the NP/AP (acid generation potential) ratio calculated from bulk NP. This approach has been implemented based on Dominion's extensive review of the existing geochemical dataset and aligns with industry best practices and updates to recommended acid rock drainage evaluations through technical literature published by the Mine Environment Neutral Drainage Program (MEND) and International Network for Acid Prevention Program (INAP). Given the significant limitations associated with the MDAG work, it is not appropriate to apply the NP correction factor proposed by IEMA.

2

Dominion Diamond initiate and enhance monitoring programs needed to support development and verification of Waste Rock Storage Area water balance and thermal models.

DOMINION DIAMOND RESPONSE:

Dominion's existing seepage and thermal monitoring programs (summarized below) have provided, and will continue to provide, extensive and valuable data in the development and calibration of Waste Rock Storage Area (Waste Rock Piles)'s thermal models. Where appropriate, these programs can be supplemented to fit specific model needs such as planned activities to evaluate surface flows.

Seepage Monitoring:

Dominion monitors the seepage from the Waste Rock Piles twice per year and presents the data in the annual seepage survey report. The seepage surveys are conducted at all the Waste Rock Piles on-site at the Ekati mine and include site

visits during freshet and in the fall to collect seepage samples. In 2018, in addition to the seepage surveys, Dominion will conduct mapping of surface flow pathways where Waste Rock Piles and CKR seepage flows daylight and, if possible, seepage flow pathways downstream of the Waste Rock Piles and the Coarse Process Kimberlite Storage Area. Dominion is also conducting a waste rock seepage hydrology investigation to monitor seasonal flow variations.

Thermal Monitoring:

Dominion will continue to collect ground temperature monitoring data and provide a summary of the ground temperature conditions annually. Ground temperatures in Waste Rock Piles are measured a minimum of four times annually, using ground temperature cables (GTCs) installed at various locations. Twenty-two GTCs are recording temperature data from toe berms and Waste Rock Piles at Ekati. Dominion installed a new GTC at Misery Waste Rock Piles as part of the recent winter investigation and this GTC will be incorporated into the annual ground temperature monitoring data collection program.

TO: GOVERNMENT OF THE NORTHWEST TERRITORIES (TOPIC = CLOSURE & RECLAMATION)

3

The Government of the Northwest Territories, Department of Lands work with the Department of Environment and Natural Resources to develop a legal or policy framework which enables land and water-related reclamation securities to be managed under a single regulatory instrument.

GNWT RESPONSE:

GNWT understands that a single regulatory instrument for managing land and water-related reclamation securities could be beneficial. Because the Mackenzie Valley Resource Management Act remains federal legislation, however, GNWT does not have the necessary legal authority to create such an instrument. GNWT will continue to work with Canada, the Land and Water Boards, and others to develop a clear and enforceable approach to managing land and water-related reclamation securities.

TO: DEPARTMENT OF FISHERIES AND OCEANS

4

Department of Fisheries and Oceans Canada improve the level and rigor of their participation in the assessment, review and monitoring of activities, programs and management plans related to fish and fish habitat at the Ekati mine.

DFO RESPONSE:

In response to the above-mentioned recommendation, FPP has analyzed its involvement in Ekati assessments, reviews and monitoring activities, programs and management plans. In the 2017-2018 year, FPP has participated and/or is currently involved in several reviews in regards to the Ekati mine. This includes, but is not limited to:

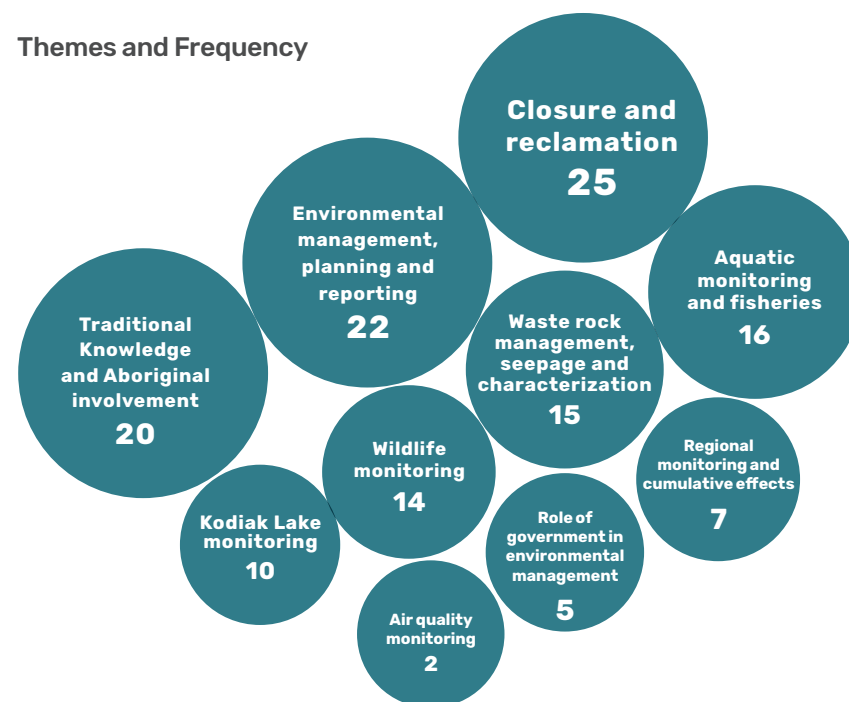
- January, 2017: FPP participated in Dominion's community engagement sessions on the proposed Jay offsetting plan
- February, 2017: FPP reviewed Dominion's proposal to construct and install two watercourse crossings for the construction of the Jay Road;
- April 2017: FPP issued a Letter of Advice for two watercourse crossings as part of the construction of the Jay Road;
- April 2017: FPP reviewed the Sable Dewatering Plan and provided comments;
- July 2017: FPP reviewed the Aquatic Effects Monitoring Plan 2016 Annual Report and provided comments;
- September, 2017: FPP conducted a site visit at Ekati, specifically at the Jay Road, and other sites of interest to DFO including the Panda Diversion Channel (PDC) and the Pigeon Stream Diversion (PSD);
- October, 2017: FPP reviewed the PDC offsetting monitoring report(s);
- December, 2017: FPP reviewed the as-built designs and fish salvage monitoring reports for the construction of watercourse crossings B0 and Ac35 as part of the Jay Project;
- Winter, 2018: DFO-FPP conducted engagement on the proposed changes to the Fisheries Act;
- Winter, 2018: FPP participated as an intervenor in the review of the Misery Underground (MUG) Project;
- Winter, 2018: FPP participated at an interim closure reclamation plan (ICRP) workshop;
- Winter, 2018: FPP has continued to review the proposed inconnu stocking plan for the Jay Project. The draft plan was reviewed by DFO Science (Canadian Scientific Advisory Secretariat (CSAS) review of Dominion's proposed offsetting plan).
- May, 2018: FPP reviewed the proposed Sable diffuser construction plan;
- June, 2018: FPP and Dominion are arranging a follow-up site visit for the Jay project area and other sites at the Ekati mine of interest to DFO.

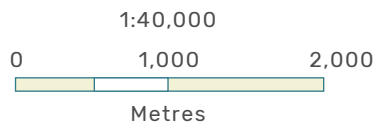
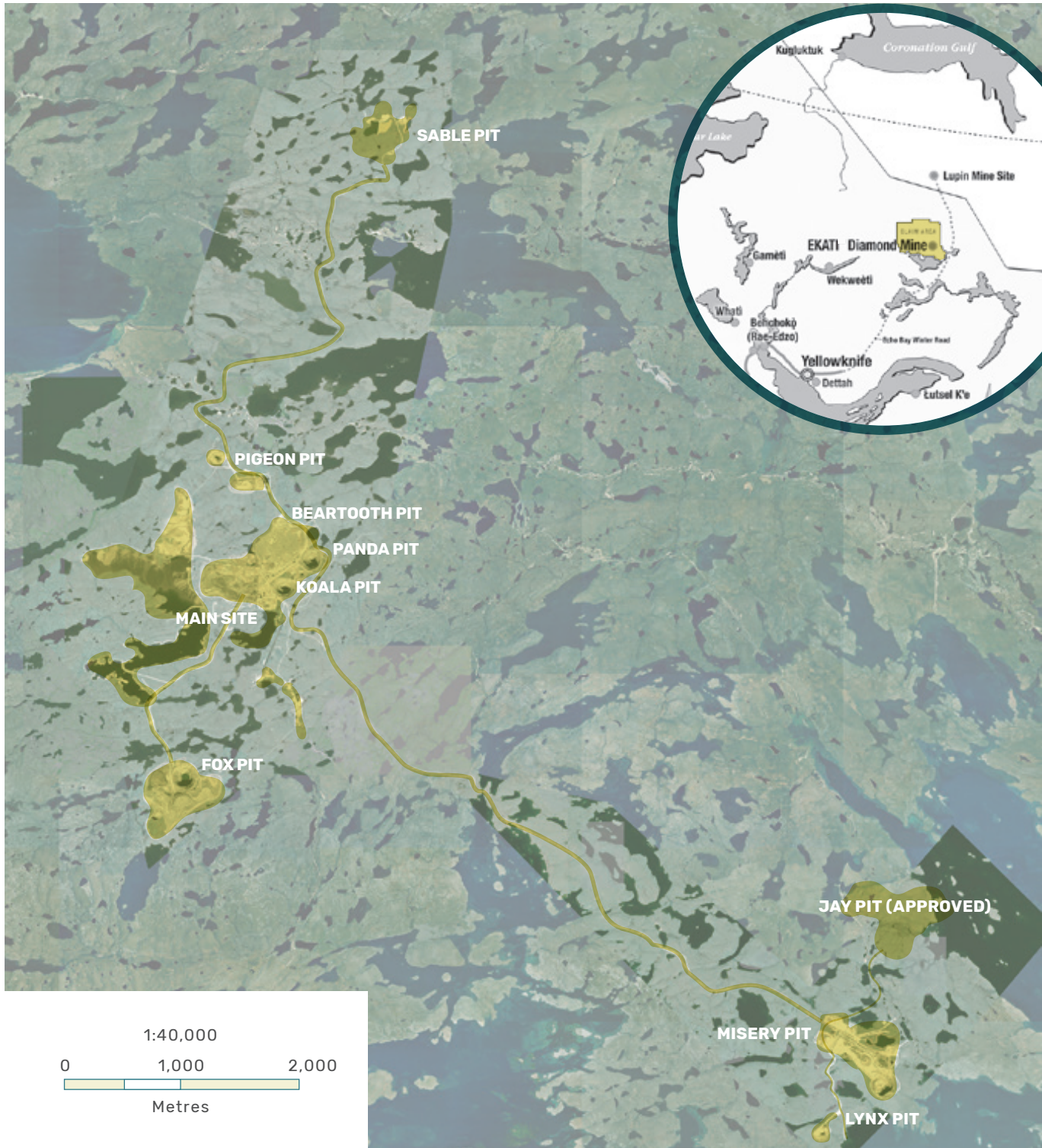
As demonstrated by the above examples, FPP participates in the review of proposed activities at the Ekati mine that have the potential to impact fish and fish habitat, and conducts follow-up in relation to those works, undertakings and activities for which it has issued approvals. DFO will continue to conduct comprehensive reviews according to our mandate "to maintain the sustainability and ongoing productivity of commercial, recreational and Aboriginal fisheries".

Figure 1: Agency Recommendation Themes 1997-2017

RECIPIENTS	# OF RECOMMENDATIONS
Dominion Diamond Ekati Corporation (Dominion Diamond - Previously BHPB)	98
Government (GNWT, Government of Nunavut, Government of Canada)	21
Water Boards (NWT Water Board, Mackenzie Valley Land and Water Board, and Wek'eezhii Land and Water Board)	11
Environmental Agreement signatories	3
Aboriginal Society Members and Dominion Diamond	3
Aboriginal Society Members	1
All Agency Society Members	1
Total	134

Themes and Frequency





- NORTHWEST TERRITORIES
- NUNAVUT

GLOSSARY

Adaptive Management – Learning from environmental monitoring results and using the results to change and improve operations and monitoring.

Closure – Act of ceasing mining, processing and other production activities (final closure of the mining operation).

Consultation – (i) The party to be consulted has enough notice on a matter to allow for the party to prepare its view on the matter. (ii) Opportunity to present these views to the decision making body. (iii) Full and fair consideration be given to any party that presents their views to the decision making body.

Contaminant – A substance not naturally present in the environment or present in amounts that can negatively affect the environment.

Cumulative Effects – Environmental changes or impacts from past, present and future human land use activities (e.g., exploration and mining) combined with natural factors (e.g., fires, climate change).

Devolution – A transfer of responsibility from the federal government to a provincial or territorial government.

Dioxins and furans – A type of organochlorine that can cause cancer and other health problems. A group of chemicals that mainly come from the burning of waste.

Effluent – Wastewater that flows into a receiving body of water.

Environmental Agreement – Signed by BHP Billiton and the federal and territorial governments in 1997 to provide environmental monitoring for the Ekati Mine not covered by other licences and permits. The Tłı̨chq Government, Akaitcho Treaty 8 First Nations (Lutsel K'e Dene First Nation and Yellowknives Dene First Nation), Kitikmeot Inuit Association and North Slave Metis Alliance were involved in the negotiations.

Financial Security – Money that is required for the reclamation of the mine.

Hydrocarbons – Elements made of only hydrogen and carbon. Hydrocarbons are found in oil products.

Kimberlite – A rare type of rock rich in iron and magnesium that sometimes contains diamonds. Created deep below the earth's surface, Kimberlites are usually found in long pipe-shaped forms.

Nitrate – A plant nutrient formed in nitrogen. Too much nitrate can affect the growth of baby fish.

Processed Kimberlite – The crushed rock and water mixture that is left over after kimberlite ore has been processed by the mill to collect diamonds. Also called "tailings".

Progressive Reclamation – Reclamation that can be carried out during the construction and operation phases of a mine prior to final closure (e.g., rock waste dumps). See also "Reclamation".

Reclamation – The process of returning areas of land and water to healthy ecosystems after being disturbed by mining or other human activities.

Tailings – See "Processed Kimberlite".

Total Suspended Particulates – Portion of dust released into the air that remains in the air.

Waste Rock – Rock that must be removed to access kimberlite pipes, or rock that contains diamonds but that is not worth mining or processing.

Wastewater – Water that contains wastes from the mining process (e.g., sewage and chemicals from explosives).



2018 ANNUAL REPORT

A PUBLIC WATCHDOG FOR ENVIRONMENTAL
MANAGEMENT AT EKATI DIAMOND MINE

PLAIN LANGUAGE

Directors

JAIDA OHOKANNOAK
Chairperson
Cambridge Bay, NU
jaida@qiniq.com

EMERY PAQUIN
Vice Chairperson
Yellowknife, NT
emerypaquin@outlook.com

KIM POOLE
Secretary-Treasurer
Nelson, BC
kpoole@aurorawildlife.com

TIM BYERS
Teulon, MB
byerses@mymts.net

RONALD ALLEN
Yellowknife, NT
rawn@theedge.ca

JESSE JASPER
Yellowknife, NT
jjasper@theedge.ca

BILL SLATER
Whitehorse, YT
bslater@bslater.ca

How To Reach Us

IN PERSON
Suite 203
5006 Franklin Avenue
Yellowknife NT

BY MAIL
P.O. Box 1192
Yellowknife NT
X1A 2N8

BY TELEPHONE
(867) 669-9141

BY FAX
(867) 669-9145

Office Staff

MARC CASAS
Executive Director

SHANNON MOORE
Communications and
Administrative Specialist

BY E-MAIL
monitor1@monitoringagency.net

WEBSITE:
www.monitoringagency.net

OFFICE HOURS
Monday to Friday
9:00 a.m.–12:00 p.m.
1:00 p.m.–5:00 p.m.

INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY

