

INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY






















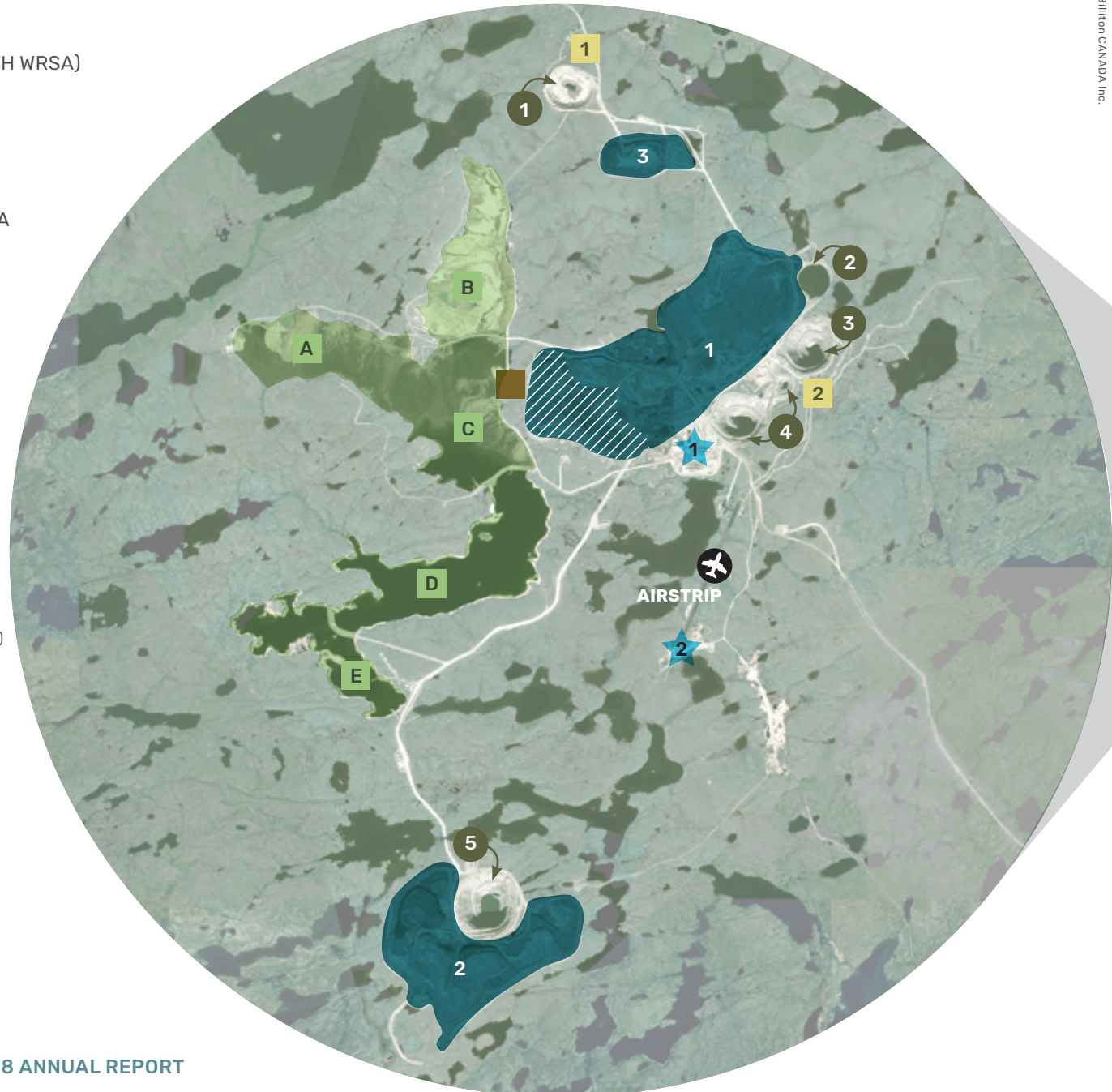
2017-2018 TECHNICAL LANGUAGE ANNUAL REPORT

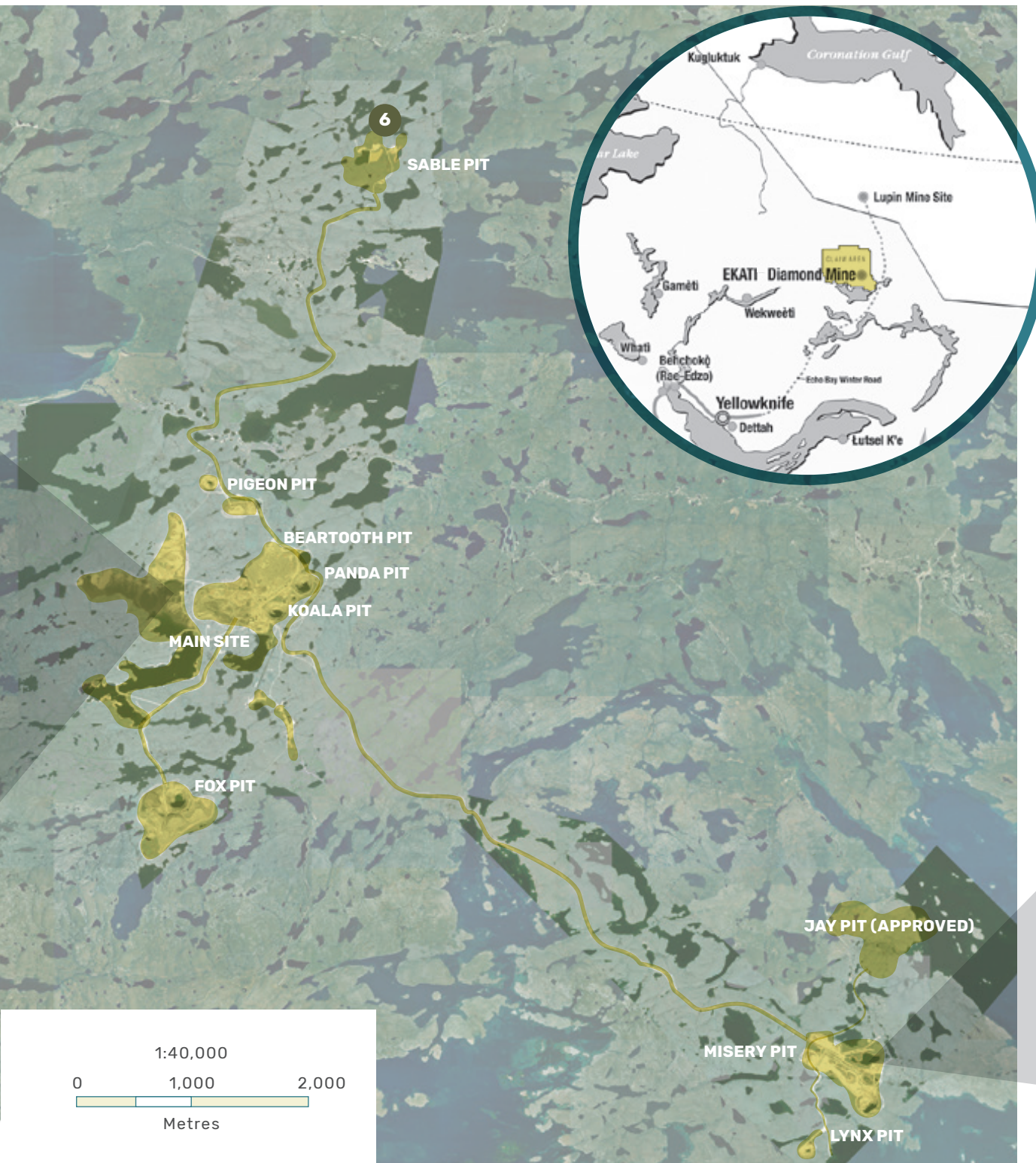
A PUBLIC WATCHDOG FOR ENVIRONMENTAL
MANAGEMENT AT EKATI DIAMOND MINE

EKATI DIAMOND MINE

LEGEND

-  1 WASTE ROCK PILE (PANDA-KOALA-BEARTOOTH WRSA)
-  2 WASTE ROCK PILE (FOX WRSA)
-  3 WASTE ROCK PILE (MISERY WRSA)
-  COARSE KIMBERLITE REJECTS STORAGE AREA
-  1 PIGEON PIT
-  2 BEARTOOTH PIT
-  3 PANDA PIT
-  4 KOALA AND KOALA NORTH PIT
-  5 FOX PIT
-  6 SABLE PIT
-  7 MISERY PIT
-  A LONG LAKE CONTAINMENT FACILITY (CELLS A-E)
-  INCINERATORS
-  1 PIGEON STREAM DIVERSION
-  2 PANDA DIVERSION CHANNEL
-  1 MAIN SITE
-  2 OLD CAMP
-  3 MISERY CAMP
-  AIRSTRIP





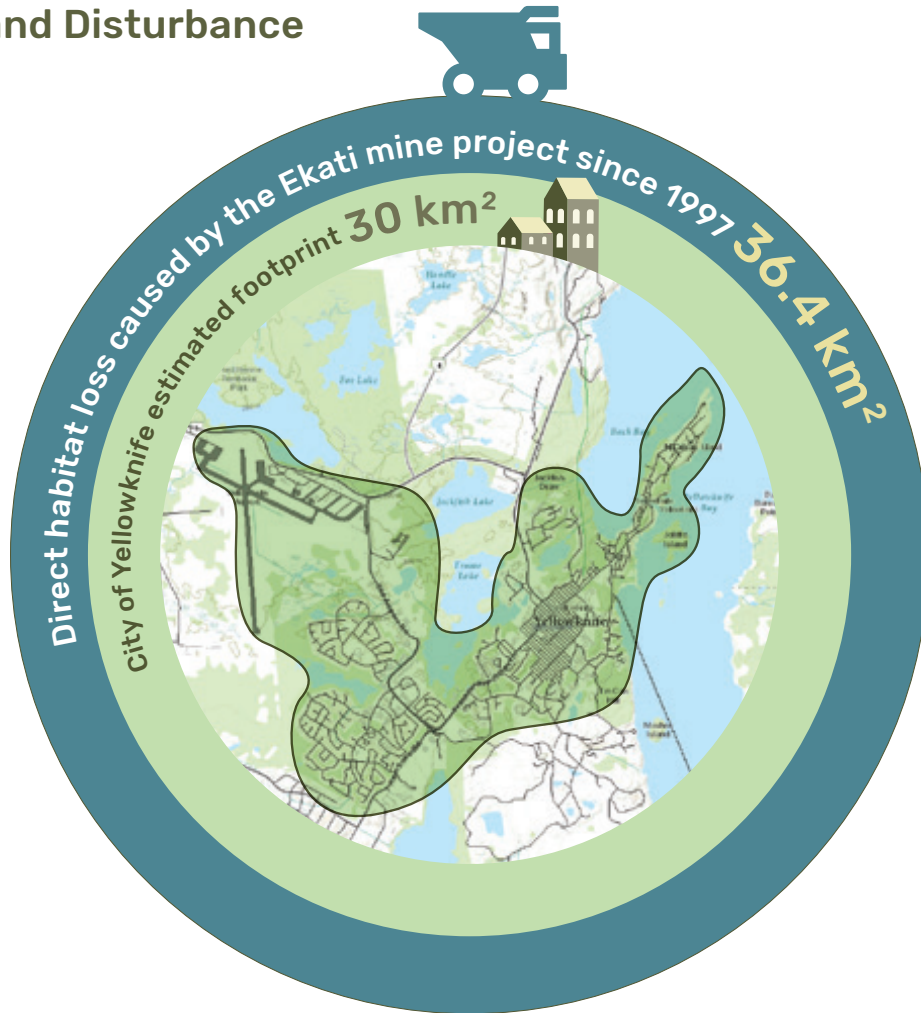
■ NORTHWEST TERRITORIES

■ NUNAVUT



LAND DISTURBANCE AND ROAD LENGTH

Land Disturbance



Road Length

YELLOWKNIFE TO BEHCHOKO 106 km - - - - -

54 km From Sable to Jay

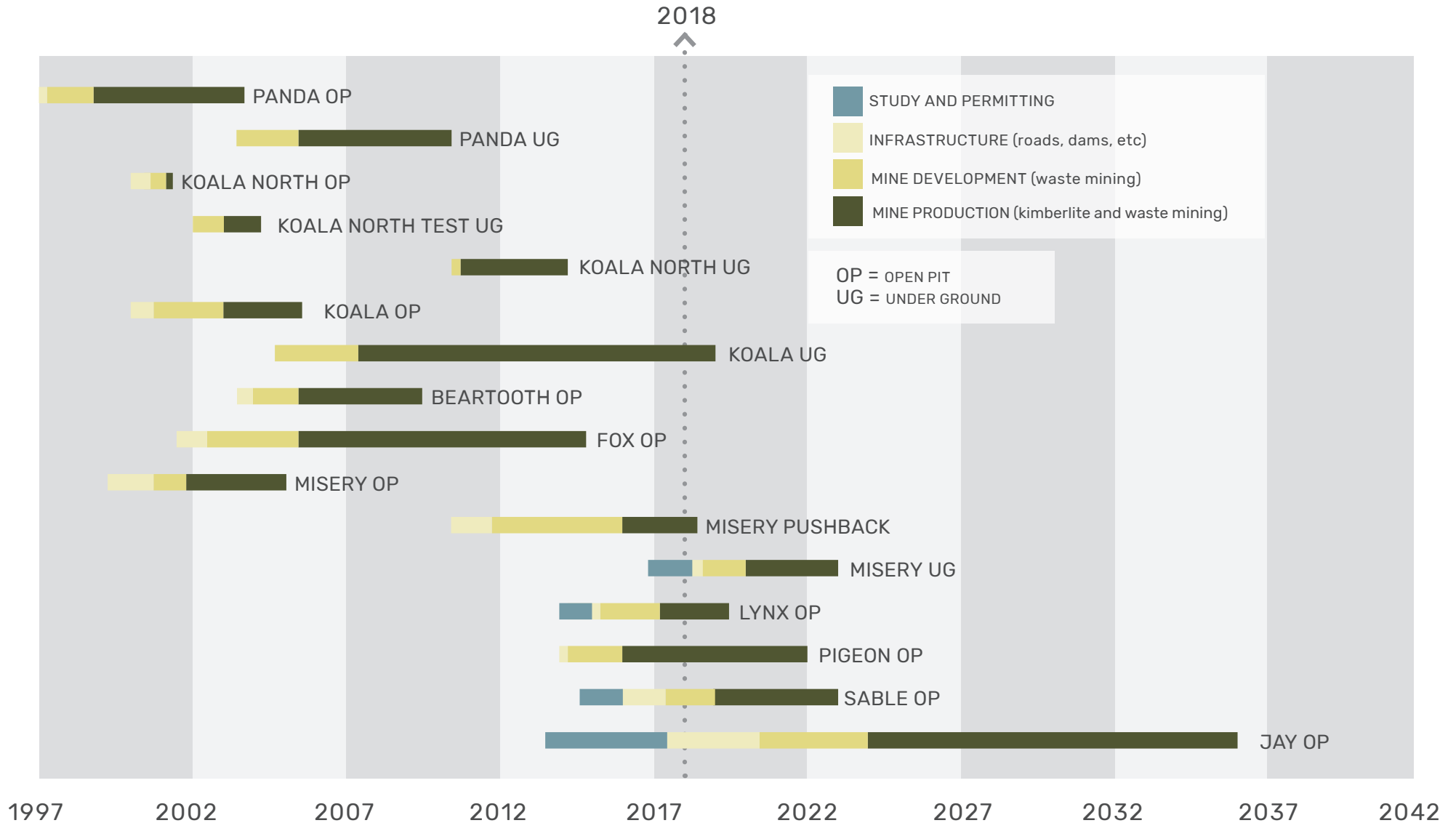
29 km Main Site to Misery

20 km Pigeon to Sable

5 km Misery to Jay

MINE UPDATE

The Ekati Diamond Mine: Life of Mine Plan



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.



Agency chairperson: Jaida Ohokannoak

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 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

DIRECTOR BIOGRAPHIES



JAIDA OHOKANNOAK | CHAIRPERSON

APPOINTED BY KITIKMEOT INUIT ASSOCIATION IN 2003

For over 20 years, Jaida Ohokannoak has lived and worked in small northern communities. She currently resides in Nunavut. Jaida has significant experience, knowledge and expertise in environmental assessment, research, monitoring and renewable resource management. She believes mining can be conducted in an environmentally responsible manner to the benefit of both industry and local peoples without long-term adverse impacts to the environment.



EMERY PAQUIN | VICE CHAIRPERSON

APPOINTED JOINTLY BY THE GOVERNMENTS OF CANADA AND THE NWT, AND DOMINION DIAMOND IN 2015

Emery Paquin is an independent environmental consultant living in Yellowknife. He has more than 35 years of environmental management experience with the northern mining industry and territorial government, and served six years as a Member on the Inuvialuit Water Board.



KIM POOLE | SECRETARY/TREASURER

APPOINTED BY THE Tłı̨chǫ GOVERNMENT IN 2015

Kim Poole first served as an Agency Director from 2006 – 2015 (jointly appointed by the Governments of Canada and NWT and BHP Billiton), but was reappointed by the Tłı̨chǫ Government in 2015. Kim is an independent wildlife biologist with over 35 years of experience in the Northwest Territories, Nunavut and British Columbia in the areas of wildlife and wildlife habitat research, and assessment and mitigation of environmental impacts related to the mining, forestry, and tourism industries.



BILL SLATER

APPOINTED BY THE NORTH SLAVE MÉTIS ALLIANCE IN 2018

Bill Slater is an independent environmental consultant with an engineering education. He is based in Whitehorse, where he has lived and worked for over 25 years. Most of his work is for First Nation governments, as a technical advisor on mining and mine closure projects. His technical focus areas include environmental effects assessment, mine closure, water quality and water management.



JESSE JASPER

APPOINTED JOINTLY BY GOVERNMENTS OF CANADA AND THE NWT, AND DOMINION DIAMOND IN 2016

Jesse Jasper retired in 2011 after 39 years of service. Since 1971 he has worked exclusively in northern Canada, focusing on land and water resource development, water monitoring studies to evaluate impacts on development. He coordinated a number of reviews and technical presentations for environmental impact assessments, including NWT Diamond Project, which is now the Ekati Diamond Mine. Jesse represented INAC and EC on a number of boards, including the Mackenzie River Basin Board, the NWT Water Board, and the Mackenzie Gas Project.



TIM BYERS

APPOINTED BY AKAITCHO TREATY 8 FIRST NATIONS (YKDFN AND LKDFN) IN MAY 2001

Tim Byers is an independent consultant living in Manitoba. He has been working on projects in the Canadian Arctic since 1980. He specializes in studies of fish, Arctic seabirds and marine invertebrates and has assisted Aboriginal communities in documenting their indigenous environmental knowledge. He would like to see more Aboriginal youth engaged in environmental sciences and Traditional Knowledge used more effectively in environmental monitoring, research and impact assessments.



RONALD ALLEN

APPOINTED JOINTLY BY GOVERNMENTS OF CANADA AND THE NWT, AND DOMINION DIAMOND IN 2017

Ron Allen has been living and working in a variety of Arctic communities since the 1970s and has worked with community groups and organizations on local cultural values, concerns and aspirations related to renewable resources. Ron moved to the Northwest Territories as a Renewable Resources Officer and transferred to Fisheries and Oceans Canada in the 1980s where he worked as a Fishery Officer and Habitat Inspector. Later, he worked as Area Manager and Area Director, delivering and managing multiple-sector operational programs including Habitat Assessment, Fisheries Management, Conservation and Protection, Science, and Administrative Services.

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RECOMMENDATIONS

Each year, the Agency distills a number of recommendations from the Annual Report and sends them to the appropriate parties for a chance to respond. This section includes both the Agency's recommendations, and the responses from the parties.

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), which have been in place since the beginning of Ekati operations, have provided and will continue to provide extensive and valuable data in the development and calibration of Waste Rock Storage Area (WRSA)'s thermal models. Where and when 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 WRSAs twice per year and presents the data in the annual seepage survey report. The seepage surveys are conducted at all the WRSAs 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 WRSA and Coarse Kimberlite Rejects (CKR) seepage flows daylight (i.e., observed on the surface) and, if possible, seepage flow pathways downstream of the WRSAs and the Coarse Process Kimberlite Storage Area. Dominion is also conducting a waste rock seepage hydrology investigation to monitor seasonal flow variations. This program began in 2018 with the installation of instrumentation at the Panda/Koala and Pigeon WRSA.

Thermal Monitoring:

Dominion will continue to collect ground temperature monitoring data and provide a summary of the ground temperature conditions annually. Ground temperatures in WRSAs 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 WRSAs at Ekati. Dominion installed a new GTC at Misery WRSA 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:

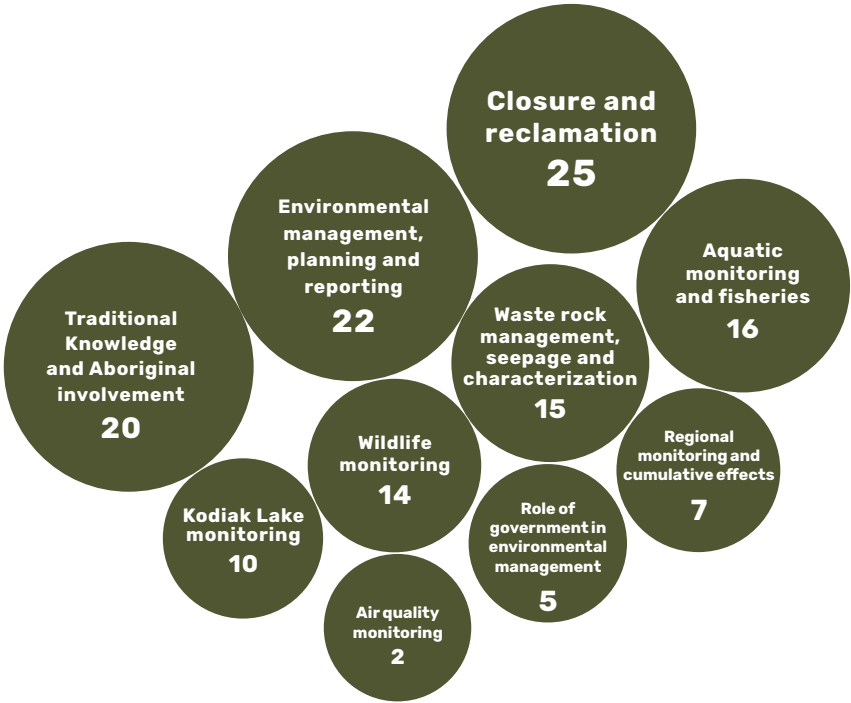
- January, 2017: FPP participated in Dominion's community engagement sessions on the proposed Jay offsetting plan
- February, 2017: FPP reviewed Dominion's proposal to construct and install two watercourse crossings for the construction of the Jay Road;
- April 2017: FPP issued a Letter of Advice for 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 (DDEC - 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 DDEC	3
Aboriginal Society Members	1
All Agency Society Members	1
Total	134

Themes and Frequency



AGENCY ACTIVITIES

HIGHLIGHTS

- 🐾 Held 3 Board Meetings, our Annual General Meeting, and a Community Information Session in Kugluktuk, Nunavut.
- 🐾 Participated in the Misery Underground and Potassium Water Licence Amendment processes.
- 🐾 Conducted a Waste Rock Workshop for Society Members as our Environmental Workshop of the year.

ACTIVITIES 2017-18

The Agency held three board meetings in Yellowknife during 2017-18 and a Community Information Session in Kugluktuk, Nunavut associated with our 2016-2017 Annual Report Writing Session.

During the Community Information Session, we discussed current conditions at the mine, as well as Sable and Jay projects. We also screened the Agency's new video that describes our mandate and shows footage of the mine and its operations (available on our website – www.monitoringagency.net).

As part of our community visit to Kugluktuk, the Agency met with staff from Kitikmeot Inuit Association, and the Mayor and Council of Kugluktuk. The Agency learned about local concerns, including water quality and shifting wildlife patterns. Making sure water downstream of the mine remains clean is the top priority for the community. The Lac de Gras area, where Ekati mine is located, includes the headwaters for the Coppermine River and the source for the community's drinking water.

The Agency conducted our annual site visit to the Ekati mine from September 12-13, 2017. The Agency visited the new Jay Road, the Lynx Pit, the re-vegetation reclamation research project at the Long Lake Containment Facility, and the Sable Road and surrounding area (where caribou were observed crossing the road).



Agency site visit to Ekati mine, September, 2017.

During this visit, the Agency discussed a number of issues with Dominion Diamond staff, including the sale of the mine to Washington Companies, expansion of the Pigeon project, the new Fox Deep project, and the Misery Underground and Potassium Effluent Quality Criteria Water Licence amendment applications.

On January 17, 2018, the Agency held our Annual General Meeting, presented our Annual Report, and summarized our Financial Statements to our Society Members.

The next day, January 18, 2018, the Agency held an environmental workshop. The topic this year, based on feedback from Society Members, was

Waste Rock. The workshop was well-attended, with all Society Member communities represented. The keynote presentation as given by Dr. Leslie Smith (Professor Emeritus from the University of British Columbia) on waste rock storage area dynamics, focussing on areas of potential concern. The Agency and Dominion Diamond also gave site-specific presentations. There was a lot of useful discussion between presenters and attendees throughout the workshop. We appreciated the valuable input we received from community members.

TECHNICAL REVIEW AND INPUT

The Agency participated in a number of major reviews:

Misery Underground – The Agency provided initial comments and attended the technical session and public hearing for the Misery Underground Project, held by the Wek'èezhì Land and Water Board (WLWB). We did not submit an intervention, since our initial concerns were addressed at the technical session.

Potassium Effluent Quality Criteria Water Licence Amendment – The Agency provided initial comments to the Potassium Effluent Quality Criteria (EQC) Amendment and participated in the technical session and public hearing. We were interveners at the public hearing. The Agencies main concern was the potential exceedance of Site Specific Water Quality Objectives (SSWQO) in the downstream environment, particularly under ice cover. The Agency recommended that, by using a combination of EQC and mitigation measures, the SSWQO for potassium should not be exceeded under all but the most extreme scenarios – including the annual under-ice period.

The Agency is still anticipating the final decision from the WLWB on the proposed licence amendment.

Studies & Reports – The Agency provided comments on a number of studies and reports regarding waste rock at the Ekati mine in 2017-18, including a 3-Year Seepage Report, Waste Rock and Ore management Plan (WROMP) 7.0 - Pigeon Waste Rock Pile Expansion, WROMP 8.0 - Lynx Diabase Rock, the Jay Waste Rock Co-Placement Study Design. Some of our key areas of concern involved water balances, lack of monitoring data, and calculation of acid rock neutralization potential. Additional information on waste rock studies and the Agency's findings can be found in the chapter entitled Waste Rock and Processed Kimberlite Management.

In addition, the Agency submitted responses and comments regarding:

- Dominion Diamond's Engagement Plan V 4.0
- Waste Management Plan - Version 4.0 (W2012L2-0001)
- Aquatic Response Framework Response Plans – Selenium, Fish, Nitrogen and Potassium
- GNWT's Bathurst Caribou Range Plan
- Sable Aquatic Effect Monitoring Program (AEMP) Design Plan and the Aquatic Response Framework Version 2.0
- 2017 Closure and Reclamation Progress Report



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

AGENCY COMMUNICATIONS

Table 1: Incoming Correspondence 2017-18

Sender	# of Pieces
INAC	0
Agency Society Members	0
Dominion Diamond	18
ECCC	2
EMAB and/or SLEMA	0
DFO	0
GNWT	10
WLWB	57
Others	6
Total: 93	

Table 2: Outgoing Correspondence 2017-18

Receiver	# of Pieces
INAC	0
Agency Society Members	3
Dominion Diamond	0
ECCC	1
EMAB and/or SLEMA	0
DFO	0
GNWT	5
WLWB	20
Others	1
Total: 30	

Timeline – The Agency has been working to revamp our online Timeline to make it more easily navigable and visually appealing. The Timeline was created to address requests of Aboriginal Society Members to have a visual chronology of developments at the mine, and the overall mine life. We hope the changes being made will provide Society Members with easier access to this information.

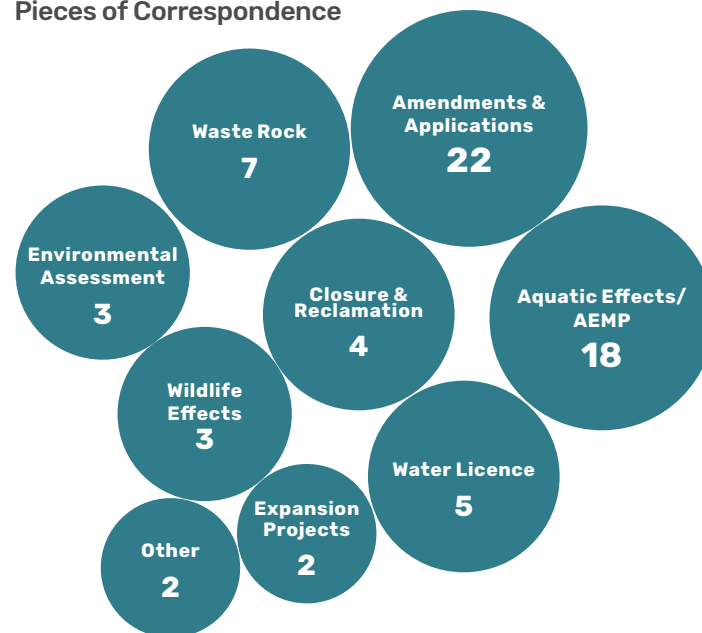
Translation of Video – The Agency video was released in the fall of 2017, and we are happy to share that we have received three of the four translated versions of the video in Chipewyan, Inuinnaqtun, and Wìlììdeh. The fourth translation, in Tłıchq is almost ready. The translated versions will be available on our website.

Website – The new website was launched in the autumn of 2017, and it is much easier to navigate, which makes our resources more accessible to Society Members and the public. The website is constantly being updated, and a new approach to sharing updates in our News section is going to be undertaken this year.

Social Media – As the Agency is continuing to update our online presence, we are becoming more active on social media. The Agency's Facebook page and Twitter account are being used to promote our latest media updates, which include the Indigenous language versions of our Agency video. The Agency hopes to use our social media accounts to share our work and projects with a wider audience.

Inter-Agency Coordinating Team (IACT) – IACT consists of the Agency, Dominion Diamond, and government regulators, including the Government of the Northwest Territories (GNWT), Indigenous and Northern Affairs Canada (INAC), Fisheries and

Pieces of Correspondence



Oceans Canada (DFO), and Environment and Climate Change Canada (ECCC). Its purpose is to facilitate the sharing of information between regulators and Dominion Diamond related to the environmental management of Ekati.

There were no IACT activities undertaken in 2017-18, and haven't been since 2014, despite the Agency's support for IACT to resume activities. The Agency brought the issue up with the GNWT during our March, 2017 Board Meeting, and in response, the GNWT put out a request to IACT members to provide their thoughts and feedback regarding re-energizing IACT. The GNWT's response to the feedback they acquired stated that: "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 3: 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 Sable and Jay roads to view 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 & Environmental 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 EFFECTS

HIGHLIGHTS



Over 52,000 caribou were observed at the mine in 2017, the highest ever recorded.

- Most caribou observations occurred along the Sable Road.



The Wildlife Effects Monitoring Plan and Caribou Road Mitigation Plan were 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) documents wildlife effects resulting from mining activities and assesses the effectiveness of wildlife mitigation and management efforts at the Ekati mine. The 2017 WEMP is the 20th annual report and it focuses on wildlife habitat and species of greatest interest including caribou, grizzly bears, wolves, wolverines, foxes, raptors and breeding birds. Included were compilations of incident reports and visual observations, ground based surveys, behavioural surveys and remote camera monitoring. Wildlife surveys were also conducted by wildlife monitors along the 69 km Misery Road power line.

Ekati Mine Footprint

An additional 84 ha of surface area of habitat were disturbed at the Ekati mine due to mine development and operations during the 2017 reporting period, including the expansion of Lynx and Pigeon pits, and construction of the Jay Road and Sable Pit. The total amount of direct habitat loss caused by the project footprint since 1997 is now 3,636 ha (36 km²). As of 2016, 136 km of roads had been constructed, but this number was not updated in 2017.

Waste Management

Dominion Diamond continues its efforts to improve waste management practices and reduce attractants at landfills, to reduce wildlife incidents, and to deter wildlife from areas of danger (e.g., airstrip, high traffic areas).

Adherence by employees to effective waste management disposal practices at the mine site appears to have improved, with overall occurrence of wildlife attractants or misdirected wastes (e.g. food, food packaging, and oil-related waste) in 2017 the lowest recorded. Over 400,000 kg of solid waste was shipped off site and 180,000 kg of biodegradable material was composted.

Wildlife Incidents and Mortalities

Wildlife incidents involve direct interaction between wildlife and humans or infrastructure. There were 12 wildlife incidents reported at the Ekati mine over the last year, including grizzly bears (8), wolverines (1), small mammals (2) and birds (1). Deterrents were used for most incidents involving grizzly bears and the one involving a wolverine. The number of incidents in 2017 was similar to numbers reported from 2011 to 2016 (6-17 annually). There were 13 reports of caribou near the Sable, Misery or Jay roads that resulted in increased alert levels and on 9 occasions, short-term road closures.

The number of vehicle-related wildlife mortalities reported during 2017 was consistent with recent years, with 10 mortalities, most notably a peregrine falcon. No caribou mortalities as a result of mine activities have occurred in recent years.

Misery Power Line Interactions Monitoring

In 2017 wildlife surveys were conducted by wildlife monitors during 231 survey days, nearly daily, during operation of the power line. A total of 127 caribou in 18 groups were recorded, primarily during the winter period. There were no incidents of caribou or other wildlife exhibiting negative wildlife-power line interactions due to operation.



Animal burrow on Jay esker

Caribou Monitoring

Caribou monitoring activities for 2017 included an analysis of abundance and distribution from satellite collared cows collected by Government of the Northwest Territories – Environment and Natural Resources (GNWT-ENR), incidental caribou observations, behaviour surveys, Long Lake Containment Facility (LLCF) monitoring and wildlife camera monitoring. Dedicated road surveys were also added in 2017. Testing of a Forward Looking Infrared (FLIR) T640 thermal imaging camera produced inconclusive results.

Ground-based incidental observations of caribou have generally declined each year since 2009, but increased in 2016. In 2017, 52,583 caribou were recorded, by far the highest number since recording of incidental observations began at Ekati in 2006. Most (86%) observations occurred during the winter period, while during the 2000s and early 2010s most caribou interacted with the mine site during spring migration and summer/fall. Overlap of the Bathurst herd and the Ekati mine occurred during winters 2016-17 and 2017-18, which is not typical for the winter period. Collar data from GNWT-ENR also indicated that caribou from the Beverly/Ahiak herd were present during winters 2016-17 and 2017-18 and overlapped with

Bathurst caribou at the mine site. Most of the caribou were observed on the eastern edge of the main mine complex and along the entire Sable road, with a smaller number on the southern edge of the proposed Jay pit and related infrastructure (see attached figure). The heavy use of the Sable road area by caribou is consistent with observations during the aerial survey program conducted during the 2000s. Road traffic volume data were collected but not available for the 2017 WEMP; these data will be provided by Dominion Diamond in an Addendum report to be released during summer 2018.

Nine behavioural focal surveys (to quantify the types of behaviours used by individuals) and 17 scan surveys (essentially behaviour at the group level) were conducted within 1.5 km of mine infrastructure in 2017 to obtain information on the proportion of time an animal or group is engaged in different behaviour (e.g., bedding, feeding, running). The caribou spent less than 10% of their time in alert behaviour and >75% either feeding or bedded, similar to compiled results of surveys conducted in 2010-2013 at Ekati.

The LLCF wildlife monitoring program documents wildlife activity in the LLCF to address concerns related to potential injury and ingestion of processed kimberlite. Only three caribou were observed in the vicinity of the LLCF in 2017. To date, no caribou injuries or deaths have been attributed to the LLCF.

The Wildlife Camera Monitoring Study initiated by Dominion Diamond in 2011 uses motion-triggered cameras to better understand how caribou respond to mine infrastructure and in particular to roads. Seventy-eight infrared motion-triggered cameras were deployed in 2017 along Misery, Sable and Jay roads, as well as at the Narrows between Lac du Sauvage and Lac de Gras. Due to the time required to process the photographs no results were presented from 2017, but an Addendum report covering a cumulative summary of 2016 and 2017 camera trapping results is expected to be distributed by Dominion Diamond in summer 2018.

Since 2015 Dominion Diamond has supported research into identifying potential mechanisms that may contribute to a zone of influence for caribou. Studies have examined visibility of mining activities, noise, dust, soil pH and vegetation cover out from the mine site, with most preliminary results indicating levels different from background at 1-5 km.

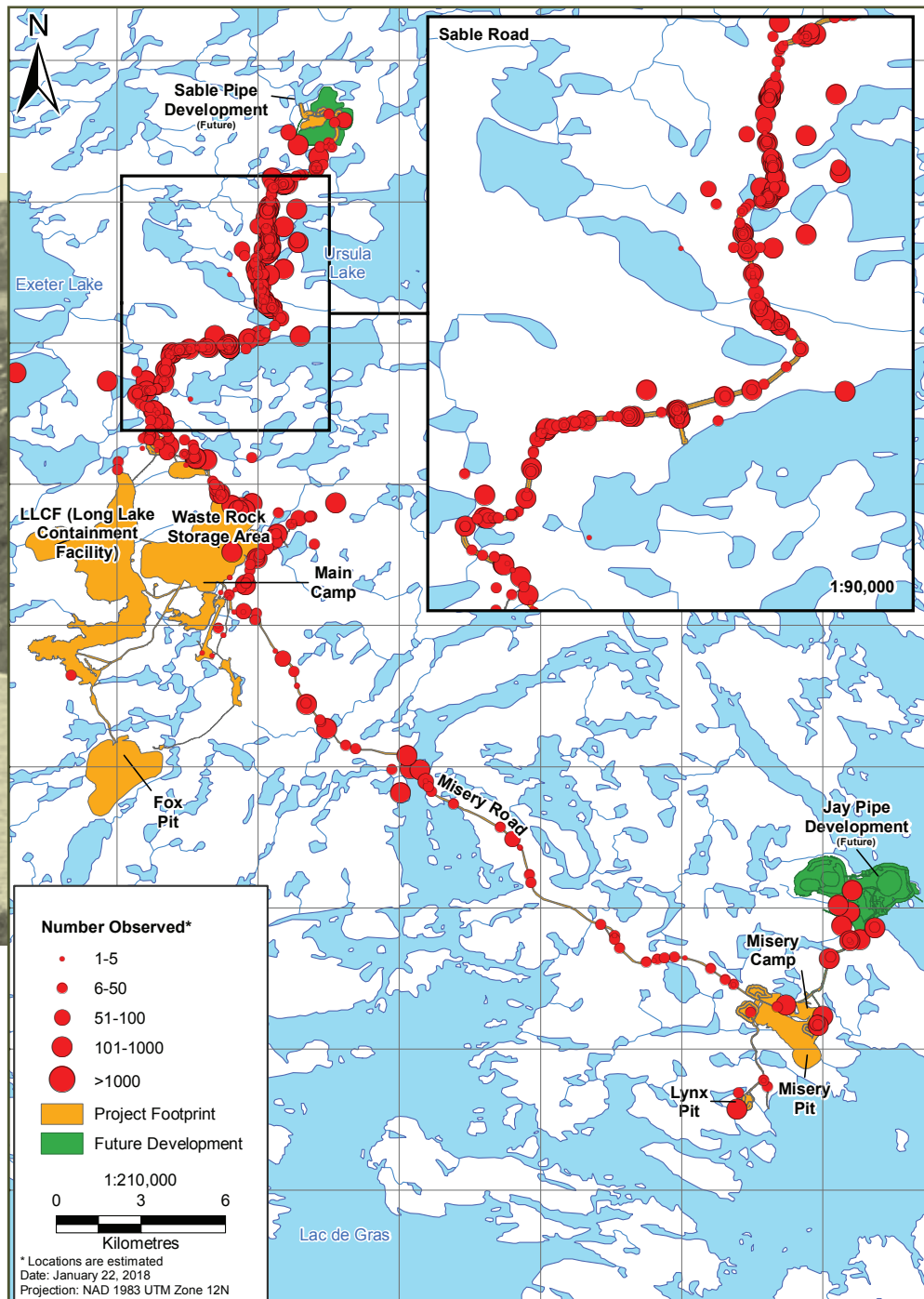


Figure 1. Incidental caribou observations at the Ekati Diamond Mine, 2017.

(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.

Grizzly Bear Monitoring

Grizzly bears were monitored at the Ekati mine through incidental observations and remote wildlife cameras. There were 148 individuals sighted on 84 occasions, including 16 observations of family groups (any group of two or more bears). The highest density of observations occurred between the main mine complex and 5 km north along the Sable Road, and within 5 km of the Misery complex along the Misery Road. A regional hair snagging DNA study was undertaken in 2017 in collaboration with Diavik, duplicating hair snagging programs conducted in 2012-13. Results will be submitted by Dominion Diamond in a separate report.



Grizzly near
emulsion plant 1

Other Wildlife

There was no monitoring of known wolf denning activity in the Ekati mine study area in 2017. In 2017, 148 wolves were sighted on 93 occasions, the highest recorded since 2001. Wolf observations were distributed relatively evenly throughout the mine site.

The number of incidental sightings of wolverines in 2017 (33) is among the highest recorded since 2006. Observed wolverines were distributed relatively evenly throughout the mine site with a concentration at or near the main mine complex and the Misery camp. The high numbers of wolf and wolverine sightings in 2016 and 2017 are likely correlated with the high number of caribou present.

While Arctic fox and red fox were not identified as Valued Ecosystem Components during the environmental assessment review process, fox occurrence at the Ekati mine is an ongoing concern because of potential attraction to human activity and the risk of transmission of rabies. In 2017, there were 162 foxes sighted on 147 occasions. Fox sightings were evenly distributed across mine infrastructure. About 12% of observations were of Arctic fox. There were no suspected cases of rabies during 2016 and 2017.

Five moose and one muskox were observed in 2017, the former species have been more commonly observed since 2013, and the latter species infrequently seen.

Successful raptor nesting occurred in five of the pits in 2017, with several of these producing nestlings (peregrine falcon, rough-legged hawk, and raven [considered here as functional raptors and because their nests are often used by other raptors]). Nesting was successfully deterred from Pigeon pit to minimize conflict with mining activities. No gyrfalcon nesting attempts were recorded, the continuation of a decline since 1995.

The North American Breeding Bird Survey was conducted for the 15th year with the number of species observed (21) and the number of individual birds recorded (394) in 2017 on the low end of records, possibly due to the survey being conducted on 28 June, later than the typical survey period at the Ekati mine (typically between June 10 and June 16).

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), initially developed for the Jay Project, was instituted for all roads within Ekati mine during mid-2016. The CRMP is a hierarchical approach to management, monitoring, and mitigation of caribou interactions with roads. Both these documents have been updated over the past 2 years. In response to review comments from the Agency and other reviewers on the December 2016 version of the Wildlife Effects Monitoring Plan and the CRMP, Dominion Diamond submitted revised plans to the Government of the Northwest Territories – Environment and Natural Resources (ENR) in March 2017. After additional revisions, ENR approved both plans in June 2017. Both plans are being implemented across the mine site, with the CRMP providing a tiered level of mitigation response to caribou presence.

AGENCY ASSESSMENT




The 2017 WEMP annual report is a comprehensive document covering all wildlife programs conducted by Dominion Diamond at the Ekati mine. The report provides details on observations and results from 2017 as well as discussing trends related to previous years. The WEMP should, however, refrain from statements that conclude tolerance for the mine site or full permeability of the power line based on a few incidental observations.

In recent years, changes to the timing and herds of caribou interacting with the mine site have been evident, with far greater occurrence during winter and from both the Bathurst and Beverly/Ahiak herds. The shift to larger numbers of caribou interacting with the mine during winter has implications for detection and monitoring caribou given the greater degree of darkness and limited alternative modes for detection.

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.

AQUATIC EFFECTS

HIGHLIGHTS

-  An increase in the Water License Potassium Effluent Quality Criteria (EQC) was requested by Dominion Diamond.
-  Selenium in Leslie Lake sediments have risen to levels that may have adverse impacts to aquatic life.
-  Sable Aquatic Effects Monitoring Program Design Plan for fish monitoring is inadequate.

Each year Dominion Diamond carries out a number of programs and studies to determine if changes in the aquatic environment downstream of its operations are occurring as a result of mining activities. There are five watersheds (Koala, King-Cujo, Pigeon-Fay-Upper Exeter, Horseshoe and Carrie Pond) which may be affected by the mining operation. Lakes and streams in four of these watersheds, as well as background sites, are sampled each year under the Aquatic Effects Monitoring Program (AEMP), which is a requirement specified in Dominion Diamond's Type A Water Licence. Using information collected through the AEMP, any changing trends in water and sediment quality, benthic macroinvertebrate communities, phytoplankton and zooplankton, as well as fish populations and health, can be identified.

ACTIVITIES 2017-18

Processed kimberlite (PK), treated sewage and surface sump water continued to be discharged into the Long Lake Containment Facility (LLCF). In addition, 2.2 million cubic meters ($M m^3$) of process plant slurry (PK and water) were pumped into the Beartooth Pit between January and June 2017, with 0.5 $M m^3$ of decanted surface water later pumped from Beartooth Pit to the LLCF's Cell C from August to September. More than 7.1 $M m^3$ of effluent was released from the LLCF between June and September 2017, entering the Koala watershed through Leslie Lake, and being diluted as it flowed downstream through Moose Lake and eventually entering Lac de Gras (Figure 2). This effluent discharge was temporarily halted on July 27 when it was discovered that it contained 28 milligrams per liter (mg/L) Total Suspended Solids (TSS), exceeding the Water License EQC of 25 mg/L. Discharge resumed on August 10.

A second major source of discharge to the aquatic environment is effluent from the Misery and Lynx sites into the King-Cujo watershed. A total of 0.4 $M m^3$ of water from the King Pond Settling Facility (KPSF), collected from Desperation Pond, Misery Pit and Lynx Pit, was pumped into Cujo Lake in July 2017.

AEMP Monitoring Results

Each year Dominion Diamond reports the results of its AEMP to the Wek'eezhii Land and Water Board (WLWB) and provides the highlights in its Environmental Agreement and Water License Annual Report. This is the 20th year of monitoring water quality in the Koala watershed, 17th year in the King-Cujo, 5th year in the Carrie Pond and 4th year in Pigeon-Fay-Upper Exeter watershed. The AEMP reference lakes and outflow streams are shown in Figure 2.

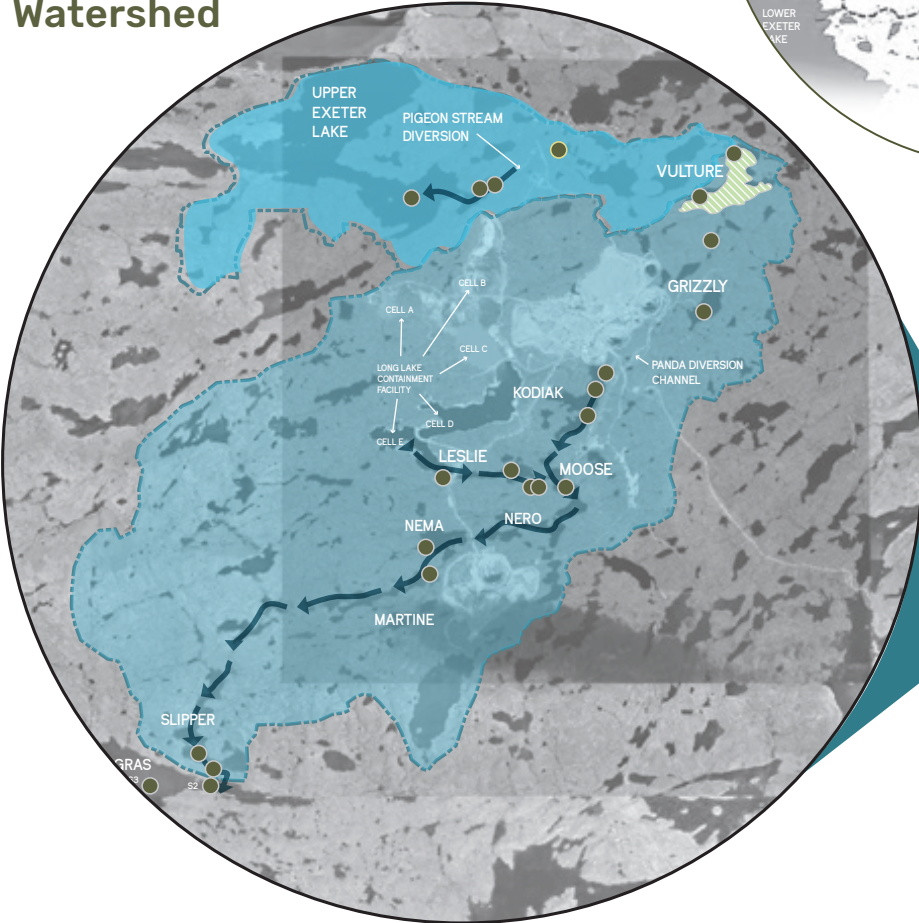
The mining effects on water quality in the Koala and King-Cujo watersheds are shown for selected variables in Table 4. While the Carrie Pond watershed is part of the AEMP, there is as yet insufficient data for the only AEMP station in that watershed, Mossing Outflow, to be included in the statistical analysis. Mossing Outflow station data will be evaluated in the 2019 AEMP Re-evaluation report. Fluoride was added for the first time to the list of evaluated variables in the AEMP in 2017, based upon recommendations from the Agency.

SUMMARY OF WATER QUALITY RESULTS

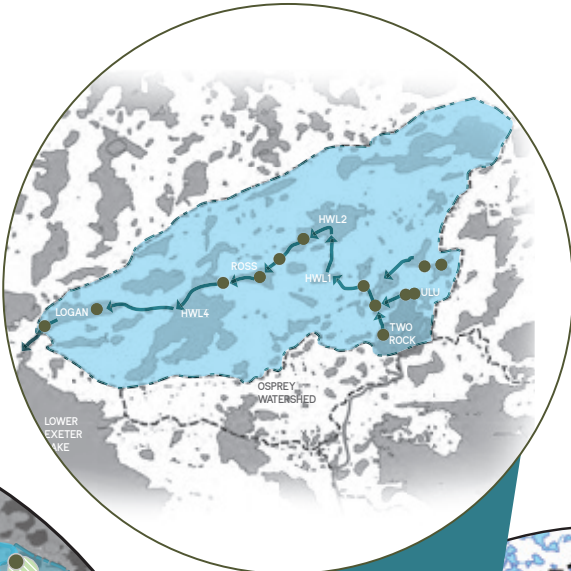
Every year the Agency reviews the annual AEMP data for any changes of note. The results are summarized in Table 4. Overall, concentrations of each of the water quality variables remain elevated above baseline levels. However, relative to the three previous years, significant increases in elevated parameters were not evident in 2017. In general, the extent to which concentrations have changed decreases with downstream distance from both the LLCF and the King Pond Settling Facility. This supports the conclusion that localized changes in water quality in the receiving environment continue to result from the discharge of effluent from Ekati operations.

Figure 2: Ekati mine watershed map with flows and sampling sites

Koala Watershed & Pigeon Watershed



Horseshoe Watershed



- AEMP sampling location
- Reference Lakes (Counts and Nanuq lakes north and southeast of satellite image)
- Watershed
- Direction of flow



King Kujo & Carrie Pond Watershed

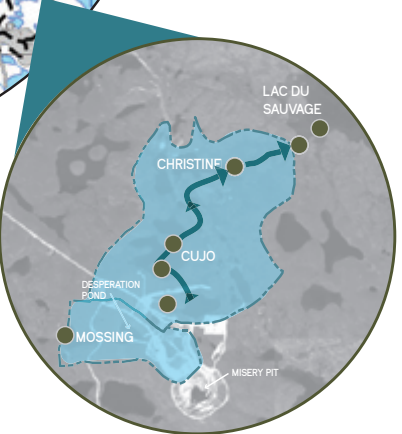


Table 4: Mining effects on water quality flowing through the Koala and King-Cujo Watersheds

<div><div>➡</div><div>Flow from effluent source to ultimate receiving lake in watershed</div></div> <div><div>●</div><div>increased over time in comparison to reference lake/stream or different from a constant</div></div> <div><div>○</div><div>elevated but not changing through time</div></div> <div><div>◆</div><div>upper bound of 95% exceeded the SSWQO, water quality benchmark, or CCME guideline during ice-covered or open water season</div></div> <div><div>★</div><div>indicates observed mean exceeded the SSWQO, water quality benchmark or CCME guideline during ice-covered or open water season</div></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
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.

SUMMARY OF SEDIMENT QUALITY RESULTS

As directed by the WLWB, for the first time a sediment corer replaced the Ekman dredge as the primary sampling device for sediment. The corer takes a column sample that retains the discrete depth layers of sediment without the layer mixing that often occurs in dredge samples. This means that the most recently deposited sediments can be differentiated from the older sediment deposits to give a more accurate assessment of chemical constituents of recent sediment deposition during mining years.

Molybdenum, selenium, and strontium levels have increased through time in both the Koala and King-Cujo watershed lake sediments while uranium increased in Cujo Lake. Of these, selenium is the most problematic as levels in Leslie Lake sediments have risen to an average concentrations of 2.3 mg/kg, exceeding the British Columbia provincial and United States federal guidelines of 2.0 mg/kg, while levels in Moose Lake are approaching these guidelines. AEMP report authors (ERM) concede *“there may be a potential for adverse effects to aquatic life in [Leslie] lake”*. The company believes the Selenium Response Plan adequately addresses this problem even though the Response Plan (RP) is based on water quality not sediment quality. The source of the elevated sediment selenium is thought to be the LLCF discharge. As selenium concentrations in fish tissue are considered to be a more accurate predictor of toxicity than in water, next year’s fish tissue monitoring results may give us an idea whether the current RP is adequate to protect bottom-feeding species like slimy sculpin and round whitefish.

Biota

Diatoms have been replacing blue-green algae as the dominant phytoplankton group downstream of the LLCF and in Kodiak Lake. Zooplankton communities in the first three AEMP lakes downstream of LLCF have also been altered. It is not yet known if these changes are having any effects on planktivorous (plantkon eating) fish.

AEMP Response Plans

Version 2.0 of the Aquatic Response Framework (ARF), approved in December 2017, has a new component which compares, for the first time, biological data to newly developed action levels. Version 3.0 was submitted in March 2018. Going forward, Dominion Diamond envisions the ARF being updated on a three-year basis in conjunction with the AEMP Re-evaluation.

Biological response plans

Plankton & Benthos Community Composition (Version 1.1) was approved by the WLWB in July 2017. For the 3rd straight year low action levels for phytoplankton and zooplankton diversity and community composition were exceeded in Leslie, Moose and Kodiak lakes. The company believes these changes are attributable to nutrient increases and developed the Nitrate and Phosphate Response Plans, which are thought to address that biological effect.

Water Quality response plans

The Koala Watershed Water Quality Model was updated in 2017 to incorporate the most recent years of measurements since the last update of the model, as well as effects of processed kimberlite from Jay Pit development. This resulted in fine-tuning predictions of future concentrations of water quality variables in monitored lakes

downstream of the LLCF. It predicts all variable concentrations will decline after PK is deposited into Panda and Koala pits from 2020 onwards.

Mean concentrations of water quality variables other than phosphorus that had previous exceedances of low action levels have stabilized (i.e., no increasing trend) or declined compared to previous years.

Nitrogen: this RP was developed to address low action level exceedance under ice for nitrates and nitrites in Cujo Lake in 2016. It was updated (Version 2.2) and approved by the WLWB in January 2018. It adds action levels for nitrite and improvements to nitrogen source control.

Phosphorus: low action levels were exceeded in Leslie Lake under ice in April 2015 and 2017, but not 2016. As a result, an updated Phosphorus RP (Version 1.2) to revise medium and high action levels was submitted in October 2017 The Phosphorus RP is awaiting WLWB decision as of this writing (spring 2018).

Chloride: low action levels were exceeded in Leslie Lake under ice in April 2015 and 2017, but not 2016. Chloride RP (Version 1.1) was approved in July 2017. Aesthetic benchmarks were not considered in setting action levels in this RP as AEMP lakes are not being used as drinking water sources.

Selenium: low action level was triggered under ice in Cujo Lake in 2016. An updated version (1.1), submitted June 2017 and approved by WLWB, revises action levels and adds selenium source control measures. Dominion Diamond currently updating to Version 1.2 which will include actions to be taken if medium action level are exceeded.

Dissolved Oxygen: low action level was triggered under ice in Cujo Lake in April 2016 and 2017. RP Version 1.2, submitted in October 2017, proposed in-situ aeration as a mitigation technique to increase Dissolved Oxygen, and revised medium and high action levels were proposed. This latest version of the RP is currently awaiting WLWB review and approval.

Potassium: medium action level was triggered under ice in Leslie Lake in April 2017. RP Version 1.3 was submitted in August 2017. It identifies actions taken, primarily optimization of LLCF discharge, and identified potential mitigation options to be investigated further once the source and mechanism of change are investigated and understood. The WLWB has required an updated version that will revise a high action level to make the mitigative action trigger at a slightly lower concentration.

Potassium EQC Water Licence Amendment

Dominion Diamond found Misery ore processing to be the source of high levels of potassium in lakes downstream of the LLCF. Dominion Diamond applied for an amendment to its Water License EQC for potassium in July 2017. It seeks to increase the EQC from 41 mg/L (maximum average) and 82 mg/L (maximum grab) to 64 and 103 mg/L, respectively. The updated Koala Water Quality Model shows that the current EQC are unlikely to be met for the duration of mining. Dominion Diamond maintains that approving the higher EQC, set equal to the Site-Specific Water Quality Objective (SSWQO) in the downstream water bodies will allow it greater operational flexibility to manage water onsite in order to minimize impacts downstream.

Even though the first lake downstream (Leslie) has exceeded 41 mg/L in under-ice conditions, the EQC has never been exceeded in Cell E of the LLCF. The company explained that ice extrusion influences under-ice concentrations of potassium; this process is dependent on (a) the amount of potassium present in lake water before ice formation, and (b) percentage of total lake water that becomes ice during the winter. Dominion Diamond believes that, assuming equal concentrations prior to freeze-up and no additional inputs to Leslie Lake, the Leslie Lake under-ice potassium concentrations are greater in comparison to Cell E because Leslie Lake is shallower than Cell E. Consequently, ice takes up a larger percentage of the total lake volume in Leslie Lake than it does in Cell E. The ice thickness combined with low water volumes in Leslie Lake results in under ice Potassium levels considerably higher in Leslie Lake than in cell E of the LLCF. The Koala Water Quality Model predictions incorporate this ice extrusion process for the LLCF and downstream lakes. Model updates in 2015 and 2016 showed the computer model's predicted potassium data points fit to the observed measurements very closely, increasing confidence in the accuracy of predictions for future years.

Dominion Diamond provided a back-calculated concentration of the potassium in LLCF effluent required to ensure the SSWQO of 64 mg/L not be exceeded downstream. This concentration was calculated to be 44.5 mg/L, less than the 64 mg/L Dominion Diamond feels it requires as an EQC.

Throughout the Water Licence Amendment process the Agency stressed the need for caution when considering the company's application to increase the potassium EQC. We recommended that Dominion Diamond make every reasonable effort to ensure the long-term potassium SSWQO of 64 mg/L is not exceeded in the receiving environment and that any adjustments to the potassium EQCs should support this objective. The WLWB's decision is expected in summer 2018.

Sable AEMP Design Plan

Dominion Diamond's fish monitoring plan for the Sable AEMP does not include slimy sculpin, favouring harvestable ("large-bodied") species to be monitored on an as-needed basis. This leaves the possibility that no fish would ever be monitored in the Horseshoe watershed downstream of Sable pit during the relatively short duration of this project. This is a major departure from the fish monitoring program done for the Koala and King-Cujo watersheds.

The WLWB did not approve the Sable plan for fish monitoring, with concerns over adequacy of baseline for harvestable fish species in Horseshoe watershed and a lack of small-bodied fish monitoring. As a result, sampling of harvestable species has been done in 2017 and the WLWB has mandated the inclusion of slimy sculpin in the next version (1.3) of the Sable AEMP Design Plan.

AGENCY ASSESSMENT

The Agency is pleased that there are no new water quality issues to report. Relative to the previous three years, water quality in lakes downstream of the Ekati mine has not degraded further in 2017. However there is reason to believe the mine is having some adverse effect on sediment quality in lakes immediately downstream of the LLCF.



The RPs that deal with early warning of impending adverse changes in the aquatic environment are consistently improving with each new update. The Chloride RP's calculation of lead times between first identification of medium action level exceedance and enacting corrective measures to avoid reaching the high action level is a particularly positive development and should be standard procedure for all RPs.

The Agency believes that incorporating both sculpins and harvestable fish species, as is currently done in the AEMP for the Koala and King-Cujo watersheds, is most effective in monitoring effects on fish communities in impacted watersheds during operations and closure. Meanwhile, Dominion Diamond feels that planning a harvestable fish monitoring program for Horseshoe watershed downstream of the Sable development is not feasible as the Project is scheduled for only 6 years of operation. As for slimy sculpin, sculpin sampling every 3 years helps fill the 6-year gap between harvestable fish monitoring years. In addition, monitoring bottom-feeding sculpin, which is a prey of larger piscivorous fish, can help understand food chain effects between contamination of the benthos and contaminants' flow up the aquatic food chain into harvestable fish species. The Agency recommends that Dominion Diamond take a consistent approach to its fish monitoring design for all impacted watersheds on its mining property.

The current hardness-dependant benchmark for chloride in lakes immediately downstream of the LLCF and Misery Pit is above concentrations that are known to affect drinking water taste. AEMP lakes are not currently being used as drinking water sources so water palatability is not considered in RPs. However, after closure land users may wish these lakes to be suitable for drinking both from a health and a palatability aspect. The Agency believes aesthetic standards should be incorporated into RP, such as the one for chloride, for lakes downstream of any waste water or tailings facility being reclaimed. 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

-  Government of the Northwest Territories (GNWT) Department of Environment and Natural Resources (ENR) released a revised Bathurst Caribou Range Plan discussion document for community and public engagement and review.
-  The Caribou Zone of Influence Technical Task Group established by GNWT-ENR will be producing a revised guidance document.

ACTIVITIES 2017-18

Bathurst Caribou Range Plan

The Bathurst Caribou Range Plan (Range Plan), led by GNWT-ENR, is a guide for decision-makers, companies and communities to help manage activities on the land in a way that supports the recovery of the Bathurst herd. The Agency participated in a technical workshop in June 2017 to review comments submitted on the previous draft Range Plan discussion document. The Range Plan team revised the document based on this and extensive public input, and in January 2018 released a draft for community and public engagement and review. Most of the Agency's initial concerns were addressed. The Agency anticipates the advisory plan will be completed in 2018.

Zone of Influence Technical Task Group

After a 3-year hiatus, the ENR-led Caribou Zone of Influence Technical Task Group reconvened in October 2017. This group was established to study and develop guidance on zone of influence monitoring of caribou avoidance around mines and roads. A number of updates to data sharing were discussed, along with a commitment by ENR to revise the March 2015 guidance document.

Caribou Research Agenda

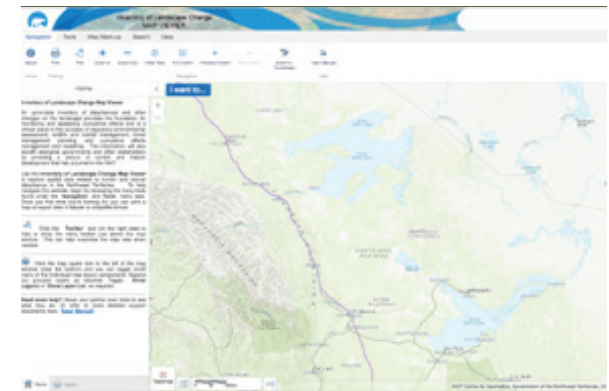
Dominion Diamond held a workshop in December 2017 to identify research priorities to identify natural (non-anthropogenic) factors contributing to the Bathurst caribou herd decline. Workshop participants identified food and forage, changing weather, and caribou health as their main priorities. As committed to in the Caribou Mitigation Plan, Dominion Diamond is providing funding of \$500,000 over 3 years to study study Bathurst caribou within their entire range; tender calls for proposed caribou research projects will be released in late summer 2018.

Grizzly Bear Monitoring

Dominion Diamond and Diavik jointly conducted a regional grizzly bear DNA hair snagging program in 2017, duplicating programs conducted in 2012-13. This large scale regional grizzly bear program is designed to assess population status and monitor trends over the long term.

Cumulative Impacts Monitoring Program (CIMP) Disturbance Map

Cumulative Impact Monitoring Program, a part of GNWT-ENR, have developed a Northwest Territories Landscape Change Viewer. It provides a webviewer map that allows you to turn on or off various types of land disturbance from forest fires to mine developments and exploration. This enables people to quickly get an idea of the disturbance for a given area. To access the webviewer please follow this link to the NWT Inventory of Landscape Change Webviewer.



To access the NWT Inventory of Landscape Change Webviewer, visit www.enr.gov.nt.ca, and explore the Cumulative Impacts Monitoring Program section in Programs & Services.

TRADITIONAL KNOWLEDGE AND ENGAGEMENT

HIGHLIGHTS

- 🐾 The Ekati Mine Engagement Plan was updated to Version 4.0 and included engagement triggers for Traditional Knowledge (TK).
- 🐾 Land use permit application has been approved for the Ekati Culture Camp site.
- 🐾 The Aquatic Effects Monitoring Program for the Sable project lacks built-in TK aspects.

ACTIVITIES 2017-18

Ekati Mine Engagement Plan (Version 4.0)

This plan guides Dominion Diamond's communication and outreach activities with affected parties, outlining engagement for on-going operations and engagement techniques for specific projects which include TK. The Agency reviewed and provided comments on the updated version of the Ekati Mine Engagement Plan that was subsequently approved by the Wek'eezhii Land and Water Board (WLWB) in October 2017. The updated version includes engagement triggers (such as an identified need for TK input), primary purpose and methods for consultation, and a list of primary participants. On-going engagement ranges from formal consultation (i.e., Impact Benefit Agreement meetings, regulatory processes) to less-structured consultation including site-based activities where Aboriginal leadership, elders and youth are invited to visit the Ekati mine to see mine components or to take part in environmental monitoring programs.

Use of Traditional Knowledge in Operations

Traditional Knowledge Elders Group

The Report of Environmental Assessment (REA) for the Jay Project recommended that Dominion Diamond establish a Traditional Knowledge Elders Group (TKEG) to help mitigate impacts to caribou, land, water and fish. Although the REA focuses on the Jay Project, the knowledge gathered can be applied to the entire mine site.

The TKEG held three meetings in 2017-18. In April participants discussed the initial TKEG Terms of Reference and recommended the following be included in the TKEG Terms of Reference, under Purpose, *"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."*, and under Appropriate Use of TK, *"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 also discussed traditional fishing methods to be incorporated in the Jay Project fish-out, learned about the Community Caribou Engagement Program, continued discussion on the Jay Road construction and design, caribou crossings, and the road crossing at the Lac du Sauvage esker, and toured the Sable, Lynx and Misery pits.

In September and December, the Elders discussed TK, wildlife research, and the water and fish programs, and provided Dominion Diamond with important information regarding waste management, air quality and dust suppression, the Caribou Road Mitigation Plan, and the Interim Closure and Reclamation Plan. They also visited the Sable and Jay roads' caribou crossings including the cut through the Lac du Sauvage esker.

Environmental Monitors

Dominion Diamond continues to provide opportunities for Aboriginal community members to become familiar with the Ekati mine environmental monitoring programs and studies and share TK. During this reporting period community members provided surveillance of raptors that attempted to establish nests close to the Misery, Lynx, Pigeon and Sable pits and were engaged as wildlife monitors for the grizzly bear DNA sampling.

TK in Sable AEMP Design Plan

From March to October 2017 community members participated and used their local knowledge and experience to successfully capture, sample and release large-bodied fish for baseline studies in Sable Aquatic Effects Monitoring Program lakes.

Traditional Knowledge Culture Camp

A Land Use Permit to establish a Traditional Knowledge Culture Camp was approved by the WLWB in June 2017, and subsequently amended in March 2018. In the application, Aboriginal Society members recommended that the camp be located in an area that would not disturb migrating caribou and near the Narrows between Lac du Gras and Lac du Sauvage, which is a traditional use area. The recommended site is east of an esker running between Paul and Duchess lakes (east of the main mine complex and north of the Jay Project). The camp will accommodate up to 30 people. It will be in operation for 30-40 summer days with additional spring and fall periods of 2 weeks each also available.

Jay Fish Offsetting Plan

Dominion Diamond has been working with communities and Fisheries and Oceans Canada (DFO) to develop a Fisheries Offsetting Plan that would reintroduce Inconnu (coney) to the Yellowknife River. Dominion Diamond has also undertaken a series of community meetings with the North Slave Métis Alliance, the Fort Resolution Métis Council, the Kwe Beh Working Group, the Yellowknives Dene First Nation (YKDFN), Deninu Kue First Nation, and in the communities of Behchokq, Whati, Gamètì, Łutsel K'e, Wekweètì, and Kugluktuk to discuss options to include other local fish enhancement projects in the Plan.

Student Seed Reclamation Program

Students were selected by their schools to assist with the collection of seed from native grasses for reclamation efforts at the Long Lake Containment Facility (LLCF). This program provides the opportunity for young community members to gain first-hand experience working at the mine, while actively participating in mine reclamation.

Site Visits

During this past year Dominion Diamond hosted a number of groups to site including high school students and their chaperones from Łutsel Ke Dene First Nation, Yellowknives Dene First Nation, Ft. Resolution Métis Council, Deninu Kue First Nation and Kugluktuk. The groups visited the Ekati mine and job-shadowed with the Process Plant, Training, and Security departments.

Community-Based Traditional Knowledge Projects

Tłıchq Boots-on-the-Ground Caribou Monitoring

Boots-on-the-Ground is a caribou monitoring program where Elders and caribou harvesters use traditional methods and knowledge to assess current conditions of the Bathurst caribou herd's summer range. It focuses on caribou and their habitat, predators and industrial disturbance. The 2016 Boots on the Ground Caribou Monitoring Results Report was released in August 2017. The information obtained will help determine cumulative impacts from natural and man-made stressors. Dominion Diamond supported the program in partnership with the Tłıchq Government, the Wek'eezhi Renewable Resource Board, and the GNWT.



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

AGENCY ASSESSMENT

The Ekati Mine Engagement Plan continues to improve, however, while well written for engagement within their definition of affected parties (i.e., Aboriginal groups and communities), it lacks information about engagement practices with the Agency and regulators. There is no description on how Dominion Diamond plans to engage with other “stakeholders” in concert with, or in addition to, the formal WLWB regulatory processes and those established under the Environmental Agreement. The Agency has recommended Dominion Diamond include this information in a future version of the Engagement Plan and detail how engagement will be conducted with all stakeholders.

In January 2017 the TKEG approved a Traditional Knowledge Management Framework that outlines Dominion Diamond’s plan to collect, store, manage, and use TK. This Framework implements Measure 7.1 of the Jay Project REA. The company has committed to substantive steps to improve the TK Framework toward achieving greater transparency and consistency. However, the Agency remains concerned that the engagement plan does not indicate how TK is incorporated into environmental management at the Ekati mine.

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.

Dominion Diamond states that the intent of 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.”* It has always been the Agency’s understanding that the intent of establishing a TK on-the-land camp was also to apply Aboriginal Society members’ TK to monitoring mine-caused disturbances to the land and wildlife. It would be beneficial to know if the TK Culture Camp could be or will be used for this purpose.

As currently planned, fish monitoring is the only opportunity for TK input into monitoring the impacts of the Sable Project. The YKDFN had recommended that Dominion Diamond collect TK information on water quality. The WLWB directed Dominion Diamond to provide information on how it will include TK in the Sable AEMP other than large-bodied fish monitoring which would be done very infrequently, if at all (see Aquatic Effects chapter).

Dominion Diamond was also directed to explain how aboriginal parties, particularly YKDFN, were engaged on the Sable AEMP design as the WLWB was unsure whether Dominion Diamond had adequately reached out to YKDFN. While the company focused its engagement with the TKEG, noting that the TKEG includes YKDFN representatives, it was unclear whether YKDFN communities were engaged directly and whether concerns remain regarding TK use for Sable AEMP. The Agency would like to see this community engagement question reconciled to the WLWB’s and YKDFN’s satisfaction.

AIR QUALITY

HIGHLIGHTS

- 🐾 Air Quality and Emissions Monitoring and Management Plan for the Jay Project was approved by Government of Northwest Territories (GNWT).
- 🐾 GNWT has recommended an interim dustfall objective for the Ekati Mine Site.
- 🐾 Dustfall along the Lynx Road exceeded the GNWT dustfall objective at 300m.

ACTIVITIES 2017-18

The Ekati Air Quality Monitoring Program (AQMP) was initiated in 1998 and the results are reported every 3 years in concert with the snow and lichen sampling program. The 2017 AQMP provides the results of the air quality around the Ekati Diamond Mine for the period of 2015 to 2017.

Meteorological Stations

Meteorological data at Ekati are collected on a daily basis from the Koala and Polar lake (open water season only) meteorological stations as well as from the airport when personnel are available. The stations have sensors to monitor temperature, relative humidity, precipitation, and wind speed and direction. There are periods of missing wind data from the Koala meteorological station for all 3 years due to wind sensors freezing in the winter. The results from each station are reported annually as part of the Aquatic Effects Monitoring Program (AEMP).

The Ekati mine area is fairly windy 3.0 to 5.0 m/s (11 to 18 km/h). The winds are primarily from the east or east-northeast and secondary from the northwest. In 2015 the temperature was 0.1°C lower than, and 2016 and 2017 were respectively 0.5 and 0.6°C warmer than, the average temperature of the historical period. Historical regional temperatures from 1948 to 2016 show that the region is warming steadily. Annual precipitation for all three years of monitoring are below the 1995 to 2017 average, with 2017 being the driest year on record due to the low amount of precipitation recorded during the winter months.

Air Emissions

Every year Dominion Diamond calculates air emissions resulting from burning of diesel fuel, and reports them to the National Pollutant Release Inventory (NPRI) and the Greenhouse Gas (GHG) Emissions Reporting Program. From 2015 to 2017 GHG emissions increased by 14% from the previous 2012 to 2014 AQMP period and 28% from the 2009 to 2011 period. Dominion Diamond has indicated this may be due to increased fuel usage associated with de-centralization of mining activity and developing new pits (i.e. Sable Road construction).

The Ekati mine represents approximately 15% of the total CO₂e emissions in the Northwest Territories. Although current total GHG emissions are higher than previous periods, Dominion Diamond reports that it has been making efforts to reduce energy use and GHG emissions at the Ekati mine. They have replaced traditional light bulbs with LED lights; continued with composting; minimized the idling of equipment; and encouraged individuals to turn off lights and turn down the temperature in the dorm rooms when vacant.

Partisol Samplers

Thermo Scientific Partisol samplers measuring Total Suspended Particulate (TSP) are installed at the Grizzly Lake and Cell B air quality stations and one measuring fine Particulate Matter (PM_{2.5}) is installed at the Continuous Air Monitoring Building (CAMB).

The samplers were run for 24 hours every 6 days. In June 2015 they were synchronized to match the National Air Pollution Surveillance Program (NAPS) schedule. On most sampling days, TSP concentrations were higher at the Grizzly station compared to the Cell B station. All daily concentrations of TSP measured were below the 24-hour GNWT TSP standard of 120 micrograms per cubic meter (µg/m³). All PM_{2.5} samples collected at the CAMB (Partisol) station were below the 24-hour GNWT standard of 28 µg/m³.

Continuous Air Monitoring (CAM)

A Continuous Air Monitoring (CAM) station is located at the Polar Explosives site, where NO₂, NO, NO_x, SO₂, TSP and PM_{2.5} concentrations are continuously measured as well as ambient temperature and wind are monitored.

NO₂, NO, NO_x and SO₂ are primarily formed by the burning of fossil fuels. The CAM results from 2015 to 2017 indicate that mean monthly concentrations of these gases were higher during the winter compared to the rest of the year primarily due to heating. This is the same as previous years. All SO₂ and NO₂ hourly, daily and annual average values were below the GNWT ambient air quality standards.

Levels of $PM_{2.5}$ were generally higher from May to September and are primarily due to the burning of diesel fuel, wildfire smoke and fugitive dust. Levels of TSP are higher from April through August and are associated with fugitive dust emissions from road use, material handling, and blasting. The continuous particulate monitors at the CAM building recorded exceedances of the GNWT standards in 2015 and 2017 on days when smoke from distant wildfires was present at the mine site. Recognizing this, *"as directed by the GNWT, for those dates with visible wildfire smoke at the Ekati Diamond Mine, the TSP and $PM_{2.5}$ concentrations were not considered representative of the Ekati Diamond Mine activities and were not to be compared to the relevant GNWT standards"* (AQMP 2017). All other $PM_{2.5}$ and TSP values were below the GNWT 24-hour and annual standards. There are still some issues with data capture at the CAM building due to mechanical issues in October thru December 2017 resulting in data for only 58% of the year (2015 85% and 2016 74%).

Dustfall Monitoring Program

Fugitive dust is measured at various distances away from haul roads, LLCF and the airstrip between June and September. Each station has 2 canisters – one for measuring sulphate and nitrate, the other for total metals. During the three year dustfall monitoring period from 2015 to 2017, the sampling program increased the number of dustfall sampling stations to 17, 22, and 31 respectively. New dustfall samplers were added along the Lynx Road in 2016 and along the Jay and Sable Roads in 2017. Two of the dustfall stations (AQ-49 and AQ-54) serve as background sites and are approximately 21 km and 36 km west-northwest of the mine (these sites coincide with the snow and lichen collection sites for comparison purposes).

Results indicated that dustfall was greater close to the haul roads (<90m), and decreased with distance from the road. Dustfall samples collected over 1 km away from site activity were found to be similar to background reference values. Dustfall in 2017 was higher than previous years due to the increased amount of vehicle traffic on each road. The MisNew dustfall stations recorded dustfall at almost 10 times that of the Mis stations at the respective distances from the road, likely due to their orientation of north-east to south-west, the direction of the prevailing winds, vs the Mis group that is orientated north and south. From 2015 to 2017 there were four locations along the Lynx haul road where the GNWT interim dustfall objective of 1.53 milligrams per square decimeter per day (mg/dm²/d) was exceeded at 300 m or greater.

Acid deposition was calculated from nitrate and sulphate concentrations in dustfall. All samples were below the annual Canadian standards for acid deposition. Metal deposition was also measured with higher metal deposition amounts for the majority of metals being found at locations close to the Lynx and Misery Haul Roads. While there are no guidelines to compare metal deposition values against, Dominion Diamond reports that *"in general the metal deposition levels are proportional to the amount of total dustfall"*.

Snow Chemistry Sampling

Snow chemistry samples are taken in a radial pattern away from the mine site, representing a variety of terrain types and distances from mine operations. Most snow core sites are co-located with lichen sampling plots, as well as some soil sample locations to allow for comparisons. Snow chemistry is analyzed for the same variables as used in the AEMP water quality sampling program.

The 2017 snow chemistry data show that TSP and a number of metals likely associated with fugitive dust and fine particulates are highest in the area directly surrounding the mine footprint and concentrations generally decrease with distance from mine activity. The notable exception was at sampling location AQ-06, which had elevated contaminant values for many variables. AQ-06 is approximately 1 km from Pigeon Pit, and less than one km from the north end of LLCF Cell B making it close to the centre of mine activity. Dominion Diamond notes that during sampling of AQ-06 there was visible fugitive dust in the nearby snow and that the sample was visibly cloudy with organics present. They conclude that these observations likely account for the elevated contaminant values for the majority of variables compared to other sample locations.

The 2017 concentrations for ammonia, nitrate and sulphate showed little spatial trends with distance from the mine site (up to 50 km). The majority of nitrate and sulphate concentrations were below the expected background concentrations. A notable exception was observed at AQ-104 (15 km from Main Camp).

Lichen Sampling

Lichens are important indicators of air quality and are commonly used to monitor for dust and metal accumulation. In August 2017 lichen plots were sampled for *Flavocetraria cucullata*, the lichen commonly eaten by caribou. *Peltigera* spp. which had been sampled in previous years, could not be collected at all sample sites and therefore was not analyzed due to its small sample size. Many of the lichen plots are co-located with snow core chemistry, soil and dustfall sampling sites and the data collected for those programs were compared to element concentrations in lichens.

The 2017 results indicate that element concentrations within lichen tissue decreased sharply with distance from mine infrastructure or roads (5 to 10 km) with a shallower decline at distances greater than 10 km. This is generally consistent with snow chemistry data. The exceptions are cadmium, manganese, mercury and zinc, which increase with distance from the mine site. Dominion Diamond reports that this may be due to natural mineralization or long-range transport from other sources (e.g. mercury from boreal forest fires). The 2017 data also show a decrease in the concentration of elements in the lichen tissues from that observed in previous years. This trend has occurred over several reporting periods, but it is not clear what the mechanism for the annual decrease in metal concentrations is, as 2017 AQMP results show a general trend of increasing emissions and dustfall.

No relationship between lichen and soil concentrations of total metals, sulphur and nitrogen was observed. Lichens are not as responsive to soil sources as they are to atmospheric sources of elements.

A significant number of positive relationships were found between the concentration of elements in the snow chemistry and the element concentrations within lichen tissues. Snow meltwater can be readily incorporated and metabolized by lichen into its tissue through contact.

The relationship between the mean daily dustfall and the element concentrations within lichen tissue suggests that greater levels of dustfall are associated with increased element concentrations. However, there were relatively few co-located lichen and dustfall collection sites and Dominion Diamond advises that these results need to be interpreted cautiously.

Dust Suppression

"Fugitive dust and its potential effects on vegetation, wildlife, and water quality continue to be a community and regulatory concern at the Ekati Diamond Mine" (AQMP 2017).

The Agency and others have repeatedly raised concerns about the effects of fugitive and finer dust on vegetation and caribou, including possible links with the zone of influence for the mine on caribou distribution. The Report of Environmental Assessment (REA) for the Jay Project also included a measure that the Jay Project *"be designed and operated in a manner that reduces impacts to caribou particularly from roads and dust."* As a result of these actions, Dominion Diamond has undertaken trial studies to test the effectiveness of different dust suppression methods and has focused in recent years on the dust suppressant called EnviroKleen. In 2015 and 2016 they conducted small pilot studies that showed encouraging results, so in 2017 they treated the entire Misery Road (29 km), with the exception of 15 m buffers in areas surrounding waterbodies where water was applied for dust suppression.

Dominion Diamond's preliminary reporting indicates 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"* (Dominion Diamond 2017 Annual Report). Dominion Diamond is looking at ways to improve the effectiveness by modifying application techniques as well as using construction materials with higher fine content and doing selective grading and spot repair during road maintenance. Soil sampling conducted by Dominion Diamond indicated that the EnviroKleen may be transported off road to a distance of 10 m, however, it is not expected to be harmful to aquatic life as there are applied buffers around water bodies and EnviroKleen is non-toxic in low concentrations and insoluble in water.

Dustfall Objective

In the Report of Environmental Assessment (REA) for the Jay Project, Measure 6-4 required the Government of the Northwest Territories (GNWT) to develop an interim Dustfall Objective for all types of dustfall that impact caribou and caribou habitat, including impacts on lichen and other caribou forage within the Jay Project zone of influence. The Objective is intended to reduce dust-related sensory disturbances to caribou. The Measure also requires Dominion Diamond to use the interim Dustfall Objective to inform its actions to reduce impacts to caribou and caribou habitat from dustfall. In May 2017, GNWT-ENR recommended an interim dustfall objective of 1.53 mg/dm²/day based on seasonal average of dust deposition applicable at 300 m from a dust source. This value applies to the Ekati mine site operations.

GNWT-ENR also reports that it is actively pursuing scientific research to better inform future decisions on deposition limits of both particulate matter and other emission variables in the NWT. The first step is a literature review to inform future research direction.

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 GNWT-ENR in May 2017. The AQEMMP is expected to be amalgamated with the current AQMP in 2018 and will include improvements and upgrades as a result of the 2015 – 2017 Air Quality Monitoring Report review process.

AGENCY ASSESSMENT

In general, the air quality results for the period of 2015 through 2017 were similar to historical data. There are still some issues with data capture due to mechanical issues with equipment however, repairs to bring equipment back online seem to happen quickly with the exception of the CAM TSP and PM_{2.5} data missing for two months in 2017.




Agency is encouraged by the preliminary results of the EnviroKleen trials but is disappointed by the length of time it has taken for Dominion Diamond to provide a full report on the application trials. During our 2017 site visit the Agency observed a positive difference in the effectiveness of using EnviroKleen on the Misery Road vs using only water as on the Lynx haul road. The EnviroKleen appeared to reduce fugitive dust as less dust was evident behind the haul trucks and treated dust fell out of the air more quickly. The Agency recommends that Dominion Diamond apply EnviroKleen to all roads on the mine site and continue to work on how best to apply this product.



Incinerator building at Ekati site

WASTE ROCK MANAGEMENT

HIGHLIGHTS

-  Sable WRSA design and Pigeon WRSA expansion proposals were approved.
-  Geotechnical investigation of the Misery WRSA was initiated.
-  Wek'èezhìi Land and Water Board (WLWB) approved the 3-Year Seepage Report with a number of directives to address concerns raised.

WASTE ROCK STORAGE AREAS

Waste Rock Storage Areas (WRSA) are designed to manage the large quantities of waste rock and overburden excavated during the mining of kimberlite ore from open pit and underground operations. They are permanent landscape structures that will remain in place following the completion of mining and are designed to be physically stable, both during mine operations and in the long term; promote the establishment of permafrost; and achieve a reasonable balance between surface footprint area and height.

There are currently five WRSAs at the Ekati mine: Panda/Koala/Beartooth, Fox, Sable, Pigeon and Misery/Lynx. A sixth WRSA is planned with development of the Jay Project. In addition, an area comprised of coarse rejected kimberlite from the process plant, known as the Coarse Kimberlite Rejects Storage Area (CKRSA), is located adjacent to the Panda/Koala/Beartooth WRSA. A summary of each WRSA and the CKRSA can be found in Table 5.

DESIGN, MANAGEMENT AND STUDIES

Sable WRSA Design Plan

The Sable Project is located approximately 20 km north of the Ekati main camp and is accessed using an all-season road. Construction at Sable began in December 2016 and operations are expected to occur through to 2022. Approximately 103 million tonnes (Mt) of granite and diabase waste rock is expected to be produced during the life of the project.

A final design plan for the Sable WRSA was submitted to the Wek'èezhìi Land and Water Board (WLWB) for approval in May 2017. Dominion Diamond proposed constructing two designated WRSAs: the South WRSA and West WRSA, both of which are located adjacent to the Two Rock Lake Settlement Facility. The South WRSA would have a capacity of 55 Mt and reach its capacity in 2020 while the West WRSA would have a capacity of 57 Mt and receive waste rock until the end of Sable mine life in 2022.

As part of the original design plan, Dominion Diamond proposed to install five ground temperature cables (GTC) to monitor the long-term thermal characteristics of the Sable WRSA. Three GTCs would be located within the footprint of the South WRSA and two GTCs within the footprint of the West WRSA.

The Sable WRSA design was approved by the WLWB in August 2017. As a condition of this approval, the WLWB directed that, until additional information is provided on a reasonable setback distance that would allow for effective seepage monitoring, no waste rock is to be deposited within 100 m of any waterbody at the Sable Project. To our knowledge at the time of writing, this additional information has yet to be submitted and the setback of 100 m remains in effect.

Pigeon WRSA Expansion Project

The Pigeon WRSA design was originally approved in 2014 to accommodate the placement of 32 Mt of waste rock from the adjacent ore deposit. In June 2017, Dominion Diamond submitted a revised Waste Rock and Ore Storage Management Plan (WROMP) proposing to nearly double the size of the WRSA. At the same time, Dominion Diamond proposed a revised closure cover design for the Pigeon WRSA consisting of placing glacial till directly over the waste rock. This design differs from other Ekati WRSAs where the cover typically consists of 5 m of granite materials.

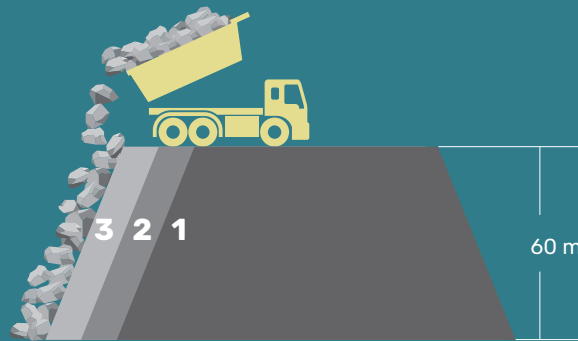
Waste rock from Pigeon pit is composed of a combination of mixed granite, diabase and metasediment rock. In its submission, Dominion Diamond confirmed that some of the metasediment is potentially acid generating (PAG) but cannot be easily segregated from non-PAG granite and diabase because the different rock types are interbanded in the vicinity of the Pigeon ore deposit. As a result, Dominion Diamond proposed that all waste rock from the Pigeon pit be treated as PAG for the purpose of managing any potential Acid Rock Drainage (ARD) and metal leaching (ML). The Agency agrees this represents an appropriately conservative approach for managing the WRSA. However, we are concerned about the efficacy of the proposed management approaches for ARD and ML because future thermal and geochemical behaviors of the expanded Pigeon WRSA remain uncertain due to over-simplified and unreliable predictive modeling.

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.

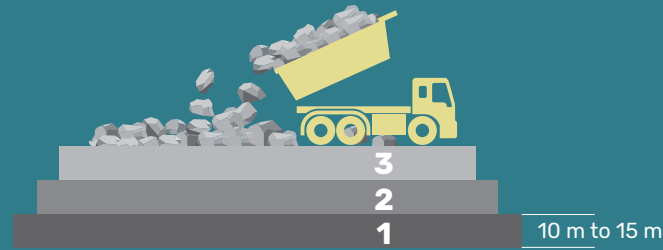
Placement from full WRSA

Proposed for Jay waste rock storage area



Placement in horizontal lifts

Used at other waste rock storage areas



The Pigeon WRSA expansion and cover designs were approved by the WLWB in September and December 2017, respectively. In response to directions provided by the WLWB as part of this approval, Dominion Diamond hosted a workshop in February 2018 to begin addressing concerns raised by the Agency and other parties regarding the thermal and geochemical modelling completed for the Pigeon WRSA expansion, Sable WRSA design and the 2016 WRSA Ecological Risk Assessment (ERA). Additional information on the ERA can be found in the Waste Rock Management chapter of the Agency's 2016-17 Annual Report. (last years report, available on our website)

Jay WRSA Co-placement Study Design

Ministerial approval to proceed with development of the Jay ore deposit was granted in July 2017. As a condition of this approval, Dominion Diamond was directed to submit a Co-Placement Study Design for the Jay WRSA that outlines the mineralogical and leach testing necessary to optimize the co-placement of PAG and non-PAG waste rock within the pile, determine the target Neutralizing Potential/Acid Potential (NP/AP) ratio and identify the scale of mixing necessary within the WRSA so as to prevent ARD and ML. The Study Design was submitted to the WLWB for approval in October 2017.

Lynx Pit Diabase and Jay Road Construction Plan

In June 2017, the WLWB approved the Road Construction Plan for the Jay Project enabling Dominion Diamond to construct roads using granite from Lynx pit. Later that month, Dominion Diamond notified the WLWB of the presence of a previously unknown diabase dyke in the Lynx pit making up approximately 1.5 Mt, or 8%, of the anticipated waste rock. Because diabase is considered by Dominion Diamond to be non-PAG using the total neutralizing potential method, or the NP/AP ratio, the company sought approval for its use in the same manner as granite during Jay road construction. In our review, the Agency noted our concern over the continued use of total NP for calculating NP/AP ratios and recommended that Lynx diabase not be approved as a road construction material until an assessment of its acid generating potential is completed using the Effective Neutralizing Potential methodology or updated calculations are provided using the 10 kg/tonne adjustment method. The WLWB has not met to consider Dominion Diamond's request at the time of writing this Annual Report.

Misery WRSA Geotechnical Investigation

A geotechnical investigation of the Misery WRSA was initiated by Dominion Diamond in February 2017. Field work involved drilling holes through the waste rock to the original ground surface. The boreholes were then logged; samples of pore water, ice and waste rock taken for geochemical analysis; and thermal and moisture monitoring instrumentation installed. Findings from the investigation will be used for Dominion Diamond's ongoing closure and research planning, and summarized in the Agency's 2018-19 Annual Report.

Seepage Monitoring

As a condition of their Water Licence, Dominion Diamond is required each year to monitor seepage from the WRSAs at the Ekati mine. The findings of these monitoring programs are reported annually in the Waste Rock and Waste Rock Storage Area Seepage Survey report (Seepage Survey Report). In addition, every three years Dominion Diamond is required to conduct a detailed review analysing trends over time (3 Year Seepage Report).

Dominion Diamond submitted the 3 Year Seepage Report in March 2017 which compared data and trends to previous years. The WLWB review and final decision on the Report was released in December 2017 and included several directives that were to be addressed in the 2017 Annual Seepage Survey Report which was subsequently submitted on April 30, 2018. The Agency will provide a summary of the 2017 Seepage Survey Report and its finding in next year's Annual Report.

The following is a summary of key findings of the 2017 Seepage Survey Report that are associated with the directives from the 3 Year Seepage Report:

- Dominion Diamond requested stopping summer hydrocarbon sampling in the CKRSA because hydrocarbon contamination has not been detected in 3 years. The WLWB approved the discontinuance of summer hydrocarbon sampling at the CKRSA.
- As directed, Dominion Diamond analysed data for seepage Reference Station REF-005 and found a number of statistically significant trends. They have committed to undertaking an additional study to determine if REF-005 is still a suitable reference site.
- Dominion Diamond was directed to propose revisions to the Water Licence Surveillance Network Program (SNP) to ensure potential impacts from subsurface seeps can be evaluated. They propose to address this as part of the Reclamation Research Plan to be submitted as part of the 2018 updated Interim Closure and Reclamation Plan.
- Six seeps of potential concern, or problematic seeps, were identified (4 Fox WRSA, 1 Beartooth/Panda/Koala WRSA, 1 Crusher Pad Misery WRSA). As part of the WLWB decision, Dominion Diamond was directed to compare seepage results to the current Water Licence Effluent Quality Criteria. Dominion Diamond defines a problematic seep as *"... a seep which exceeds Water Licence criteria for more than 1 year; or shows poor water quality compared to what is typical for that WRSA for more than 1 year."* Once a problematic seep has been identified, sampling is to be increased and, depending on results, further strategies may need to be developed;

AGENCY ASSESSMENT

The management of waste rock and processed kimberlite represents one of the most significant challenges for the eventual closure and reclamation of the Ekati mine. The large storage areas will be permanent fixtures on the Lac de Gras landscape long after mining operations have ended and, once completed, will be difficult and costly to modify. It is important therefore, that all aspects of WRSA behavior, both short term and long term, be carefully considered in their design, and all reasonable efforts be made to 'get it right the first time'.

During its review of the Jay WRSA Co-Placement Study Design, the Agency focussed on Dominion Diamond's assumption that 100% of the neutralizing potential of the granite, diabase and metasediment waste rock is available to neutralize any resulting ARD. As the Agency has stated in the past, a strong probability exists that not all neutralizing potential will be available which would result in an overestimation of the available neutralizing potential, or Effective Neutralizing Potential, of the waste rock.

This over-estimation, along with an insufficient level of geochemical mapping of rock surrounding the Jay ore deposit, could result in imperfect co-placement of the various rock types in the WRSA and enable acid rock drainage and metal leaching to the surrounding environment to occur.

Similar concerns over the continued use of total neutralizing potential was raised by the Agency during its review of Dominion Diamond's proposal to construct Jay Project roads using diabase rock from the Lynx pit. The WLWB expressed similar concerns with using the total neutralizing potential to characterize waste rock in its Jay Project Reasons for Decision, which led to the requirement for a Jay WRSA Co-placement Study Design.

Seepage Quality

Metal leaching and acid rock drainage are naturally occurring processes. Acid generation occurs when sulphide-containing minerals are exposed to oxygen and water. The resulting acidic drainage can dissolve metals and other elements from adjacent rock, carrying it to the receiving environment as seepage from the WRSA. In many cases, the acidic drainage can be neutralized before entering the environment where sufficient 'Effective Neutralizing Potential' is present in the waste rock. However, neutral pH drainage can still result in environmental degradation for elements that are soluble or remain in solution at neutral pH (e.g., antimony, arsenic, cadmium).

The matter of how to calculate the neutralizing potential of waste rock, either using total neutralizing or Effective Neutralizing Potential, urgently needs to be resolved. Until it is, the Agency strongly encourages Dominion Diamond to utilize the more protective Effective Neutralizing Potential calculation, and not rely on total neutralizing potential for predicting the acid generating potential of waste rock.

Cold ground temperatures and permafrost can slow or prevent ARD and ML. As mentioned earlier in this chapter, Dominion Diamond originally proposed to install five GTCs to monitor the long-term thermal performance of the Sable WRSA. Recently, as part of the January 2018 proposed revision to the Waste Rock and Ore Storage Management Plan, Dominion Diamond suggested that ground temperature monitoring is no longer needed in the Sable WRSA due to the pile being comprised only of granite and diabase, which Dominion Diamond contends have no potential for ARD and ML.

The Agency has strong concerns with this revision and encourages Dominion Diamond to reconsider its proposal to eliminate GTCs in the Sable WRSA.


As mentioned earlier in this chapter, the Agency has expressed concern that future thermal and geochemical behavior of WRSAs at the Ekati mine remains uncertain due to reliance on over-simplified and unreliable predictive modeling. In response, Dominion Diamond committed to undertake a workshop to begin to address these concerns. While the February 2018 workshop provided a useful forum to discuss the proposed Pigeon WRSA cover redesign and updated Interim Closure and Reclamation Plan, it was not, in the Agency's opinion, designed to effectively engage participants in an in-depth discussion on thermal and geochemical modelling.

As a result, questions and uncertainties continue to exist with respect to Dominion Diamond's approaches and methods for thermal and geochemical predictive modelling. The Agency is hopeful that these concerns can be addressed through the upcoming Interim Closure and Reclamation Plan and associated Reclamation Research Plan.

Finally, the Agency is pleased to see progress being made on identifying and evaluating problematic and underground seeps from WRSAs. This work will help in assessing the impacts WRSAs may be having on the adjacent environment.





Table 5: 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 received Ministerial approval in July 2017.
-  Construction of Jay Project 'Early Works' road and project support buildings was largely completed in fall 2017.
-  Updated plans and reports required by WLWB for Jay and Sable project water licences were submitted and reviewed in late 2017/18.
-  WLWB completed amendment application process review of proposed Misery Underground Project in February 2018; water licence approval is expected by fall 2018.

Jay Project

The Jay Project involves mining and processing of ore from the Jay Pipe, which is located under water on the west shore of Lac du Sauvage, 30 km southeast of existing processing facilities at the main Ekati minesite and about 6 km north of Misery Pit. The Jay kimberlite pipe will be accessed by constructing a horseshoe shaped dike in Lac du Sauvage, water behind the diked area will be pumped to Lac du Sauvage and Misery pit, and overburden removed. Trucks will transport the ore from Jay pit along 5 km of road to the existing Misery haul road and then to the main Ekati site for processing. The new Jay road cuts through the Lac du Sauvage esker.

Additional infrastructure required for the Jay Project includes the new access road, the dike, laydown areas for Jay project buildings and dike construction, a link to the Ekati/Misery powerline, and a new waste rock storage area near the shore of Lac du Sauvage. Groundwater and surface runoff will be pumped to Misery or Lynx pits for storage and management. The Jay Project is expected to extend the current end of mine life at Ekati by more than 10 years, to 2036.

The Wek'eezhii Land and Water Board (WLWB) submitted the new water licence to the Minister of Environment and Natural Resources in late May 2017. Significant changes to the water licence noted in their Reasons for Decision document included: retaining the current Ekati licence expiry date (2021), rather than Dominion Diamond's original request to extend the licence to 2036 (to match the expected duration of Jay Project activities), expanding the number of Surveillance Network Program monitoring sites proposed by Dominion Diamond in Lac du Sauvage during dike construction and mine operations, and setting Total Suspended Sediment limits during dike construction at lower levels than proposed by Dominion Diamond. The Jay Project water licence received Ministerial approval on July 6, 2017 and the associated Land Use Permit (LUP) was issued.

The Jay Project Early Works consisting of the main road connecting the site to the Misery road, laydown areas, project support buildings, and a communications tower were largely completed in 2017.

Sable Project

Dominion announced that it would proceed with the Sable Project in September 2015, 12 years after it was initially permitted, to help feed the mill until Jay Project ore becomes available for processing. Sable Pit is located 29 km by road north of Ekati main camp. The mine development plan requires construction of 20 km extension of the pigeon access road, dewatering of sable lake of Sable Lake, development of Sable pipe as an open pit, and use of nearby Two-Rock Lake as a sedimentation pond.

Dominion Diamond applied for a LUP for development of Sable Pit in March 2016. The WLWB concluded that the project was exempt from preliminary screening due to the previous 2003 project review and approval, and issued a Type A land use permit covering project activities for the period May 2017 to May 2021.

The Sable project road was completed in late summer 2016. Work on the Sable site in 2017 included construction of the Two-Rock Dam, infrastructure pads and laydown areas, Two-Rock Filter Dike and fuel tank storage facilities, and dewatering of Sable Lake and Two-Rock Sedimentation Pond. Water from Two-Rock Sedimentation Pond was released to Two-Rock Outflow Channel from August to September. Pre-stripping of Sable Pit commenced in August 2017. Completion of stripping and initial mining of the pipe is planned for late 2018 or early 2019.

Misery Underground

Dominion Diamond submitted a water licence amendment application to conduct underground mining at Misery Pit in August 2017. If approved, the project would provide approximately three years of ore to the process plant. The project requires minimal additional mining facilities, as current infrastructure and equipment will be used. The main change to the existing Misery open pit project involves the management of groundwater and waste water.

The WLWB held a Public Hearing on the application in Yellowknife on February 7, 2018, with interventions by regulators and other interested parties. The Agency did not submit an intervention because its main concerns were addressed during the technical session. The review process is now complete and it is expected that the WLWB will submit a draft water licence to the Minister of Environment and Natural Resources for approval in the summer of 2018.

Exploration For New Ore Bodies

While underground mining in Misery pit and development of Jay and Sable pits are expected to extend mining at Ekati to 2036 or later, Dominion Diamond continues exploration efforts on their Ekati lease to assess other potential ore bodies. Drilling of six exploration holes is planned for locations near the main Ekati mine site in summer 2018.

In addition, Dominion Diamond Mines ULC received a land use permit from Mackenzie Valley Land and Water Board in July 2017 for diamond drilling at 25 locations per year, and collection of up to 200 drill glacial stratigraphy samples over the period 2017 to 2022 for the Glowworm Lake area. This project involves 140+ mineral claims centered on an area 65 km due east of the main Ekati mine site.

AGENCY ASSESSMENT

The Agency feels that development of new pits at Jay and Sable, and underground mining at Misery Pit represents a significant geographical expansion of the Ekati mine via associated infrastructure, including roads and power lines, drainage channels, waste rock storage areas, and pits. Both projects are located in areas previously only lightly impacted by mining operations, extending the area of potential impacts to wildlife, fish, and habitat well north and further east of current mine facilities. The new roads will act as semi-permanent barriers to movement of wildlife and intersect important eskers.

The new Jay haul road cuts through the Lac du Sauvage esker running north from the Lac du Sauvage/Lac de Gras narrows, an area known to be important to caribou movement and migration. The Sable road creates new mining activity in areas near the Ekati mine that are known from a variety of observation methods (collars, aerial surveys, camera data, and incidental sightings) to be extensively used by caribou. The Agency continues to encourage Dominion Diamond to ensure impacts to these previously lightly-impacted areas are minimized while reducing impacts in existing portions of the mine site.

CLOSURE AND RECLAMATION

HIGHLIGHTS

- 🐾 A timeline for an updated Interim Closure and Reclamation Plan has been established.
- 🐾 The Reclamation Research Plan is to be revised as part of the updated ICRP.
- 🐾 Reclamation of the Old Camp area has been largely completed.

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 Mines ULC (Dominion Diamond) to have an approved Interim Closure and Reclamation Plan (ICRP) during active mining operations and to annually report on reclamation progress and any revisions to reclamation planning. Overall, reclamation planning is guided by the goal of returning the Ekati mine to a viable and self-sustaining ecosystem that is compatible with a healthy environment and human activities.

The current closure plan for open pits entails flooding and connecting underground mines to create pit lakes which are reconnected with their surrounding watersheds. Ursula Lake, Upper Exeter Lake and Lac de Gras are identified as being potential water sources for flooding, which is expected to take approximately 35 years to complete. With the exception of the Jay pit, berms are to be constructed around the pits to deter wildlife from entering the flooded pits and littoral zones established around the pit lake perimeters to enhance fish habitat. Unique among pits, the dike surrounding the Jay pit is to be breached enabling the pit to fill and be reconnected with Lac du Sauvage.

The Jay, Sable, Pigeon, Panda/Koala/Beartooth, Fox, and Misery/Lynx waste rock storage areas (WRSA) are to remain in place after mining operations have ceased. They will be covered with granite or glacial till and allowed to revegetate naturally. Their design takes into account their permanency by including a stepped profile and a flat top that prevents snow build-up and encourages establishment and maintenance of permafrost over the long term. The permafrost is expected to control acid rock drainage and metal leaching.

The Long Lake Containment Facility (LLCF) will be re-contoured and capped with a combination of rock and vegetation, and reconnected with the surrounding watershed through a system of drainage channels and ponds. All dikes and dams within the LLCF are to be breached at closure to allow water to flow through.



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

All buildings, storage tanks, power lines, water pipelines and other physical structures are to be removed and either buried in a landfill or shipped off site. Roads, lay down pads, and the airstrip are to remain in place and be decommissioned so they are safe for human and wildlife use after the mine is closed.

FINANCIAL SECURITY AND CLOSURE PLANNING

Financial Security

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

In January 2018, Dominion Diamond requested changes to the reclamation security to better reflect the cost of addressing the exposure of metasediment at the Misery WRSA and flooding of the Pigeon pit. The requested changes result from:

- A decreased area of exposed metasediment on the Misery WRSA due to revised mining schedules associated with commencement of the Misery Underground Project (decrease of \$7.9 million); and
- An increase in flooding volume due to enlargement of the Pigeon pit (increase of \$735,000).

If approved, these changes would result in a decrease of \$7.2 million to the current reclamation security. This request has not been considered by the WLWB at the time of writing this report. The outcomes of this process will be reported in our next annual report.

Split Between Land and Water Reclamation Security

With only a few exceptions, reclamation security currently is held by the GNWT under the Ekati mine Water Licence. In March 2017, as part of its closing submission for the Jay Project Licence Amendment, the GNWT Department of Environment and Natural Resources (ENR) recommended a change to this practice such that reclamation costs for the Jay Project are assigned to the Ekati mine Land Use Permits for land liabilities and Water Licence for water liabilities. In this case, \$12.4 million for land liabilities and \$5.0 million for water liabilities would be held separately under the respective regulatory instruments.

Estimating environmental liabilities is a complex process, and holding the land and water liability reclamation securities separately would increase the administrative burdens and make modifying and tracking the required securities more difficult. While Dominion Diamond has provided the detailed information necessary to split the respective Jay Project reclamation securities, it encouraged ENR to work with the GNWT Department of Lands on developing a means by which all reclamation securities can continue to be held under the Ekati mine Water Licence.

Interim Closure and Reclamation Plan

The current version of the Ekati mine ICRP was approved in 2011. Because there have been a significant number of changes to mine operations and closure planning since that time, the Agency recommended in our December 2016 intervention on the Jay Project Water Licence Amendment that Dominion Diamond prepare an update to the ICRP for WLWB approval. The WLWB agreed with the Agency on the need to update the ICRP and directed Dominion Diamond to submit an updated version, along with an updated Reclamation Research Plan, by July 2018.



Old camp site



View of Old Camp site, Ekati minesite

RECLAMATION ACTIVITIES IN 2017

A Closure and Reclamation Plan for the Old Camp site was approved by the WLWB in 2014. Reclamation activities were implemented that year and focussed on the excavation and removal of processed kimberlite and liner materials and grading to promote positive drainage through the excavated areas. In 2015, a channel to direct water through the reclaimed Phase 1 Pond, removal of debris and additional grading to promote drainage was undertaken. However, due to the process plant fire that occurred in June 2016, resources were not available that year to complete the reclamation work. Instead, Dominion Diamond largely completed the remaining reclamation activities in 2017. This work included removal of approximately 2,100 cubic meters of hydrocarbon contaminated soil to the Ekati mine landfarm and the re-grading and scarification of the Old Camp pad surface. A small amount of residual hydrocarbon contaminated soil remains near the containment cell which is expected to be delineated and removed in 2018.

Water quality monitoring was undertaken in 2017 at the outlet channel of the Phase 1 South Pond, collection trench of the capped North Pond and Larry Lake downstream of the Old Camp location. All water samples were in compliance with effluent quality criteria established by Ekati's Water Licence, except arsenic at the South Inlet sample. The elevated arsenic level is possibly a result of water moving through the reclaimed Phase 1 and North ponds. A sampling program aimed at better understanding the source and fate of the arsenic is planned for 2018.

Reclamation Research And Planning

Reclamation research at the Ekati mine is an ongoing process aimed at examining uncertainties associated with closure and reclamation. It is also a constantly changing process that must evolve to accommodate new research findings and changes to mine operating schedules, environmental management plans and the ICRP.

Reclamation research in 2017 focussed on monitoring processed kimberlite (PK) deposition in the Beartooth pit, closure water quality modelling, revegetation of the LLCF and vegetation monitoring.

Beartooth Pit Process Kimberlite Deposition Monitoring

Kimberlite slurry from the processing plant is discharged into Beartooth pit as well as the LLCF. Because the long-term plan is to reconnect the pit lake with its surrounding watershed, research is being undertaken to confirm the consolidation of fine PK in the bottom of the pit. Monitoring in 2017 consisted of a sonar bathymetric survey of the consolidated PK. The survey revealed that there continues to be a relatively flat distribution of solids throughout the pit bottom. It also suggests the current PK is approximately 140 m deep and represents 62% of the final pit capacity, assuming a 30 m fresh water cap over the consolidated PK is maintained at closure.

Beartooth, Panda and Koala Pit Closure Water Quality Monitoring

Dominion Diamond anticipates they will seek approval in 2018 to deposit fine and coarse PK in the Panda and Koala pits, in addition to the Beartooth pit. Because the current closure plan anticipates all open pits will become pit lakes reconnected to their surrounding watersheds, water quality models are being developed to evaluate post-closure pit lake water quality. Preliminary results suggest several pit lake water quality constituents may exceed surface water quality objectives over the long term. Based upon these findings, Dominion Diamond is planning to develop hydrodynamic models which will help to refine the current findings by evaluating the long term mixing potential for these pit lakes.

Long Lake Containment Facility Reclamation Research

Field-scale reclamation research continued in Cell B of the LLCF in 2017. Research focussed on surface water management to minimize erosion and maximize moisture retention, monitoring of existing vegetation trials and investigation into optimal planting strategies, expansion of trials to evaluate using organic material from the Ekati composter as a soil enhancer and continued soil sampling and monitoring of soil amendment trials. Other activities included seeding 3 hectares of Cell B with perennial grasses, fertilizing 4 hectares of previously seeded areas to evaluate its effectiveness in improving vegetation growth, harvesting indigenous mycorrhiza fungi to evaluate their potential to enhance vegetation growth, and collecting indigenous native plant seeds.

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

As part of the requirements set out in the 2017 Jay Project Water Licence Amendment, Dominion Diamond was directed to update its Reclamation Research Plan as part of the broader process to update the ICRP. While the Agency remains concerned that research activities to resolve uncertainties about reclamation strategies are continuing to slip behind schedule, some by many years, we acknowledge that current closure and research planning is likely to change significantly based on the outcomes of the updated ICRP. The Agency looks forward to reviewing Dominion Diamond's updated reclamation research plans in 2018 and to the timely and effective resumption of activities aimed at resolving major uncertainties associated with the closure and reclamation of disturbed areas at the Ekati mine.

AGENCY'S ASSESSMENT

The WLWB's review of closure and reclamation planning at the Ekati mine continues to be rigorous. The Agency takes particular note of the WLWB's decision to establish a July 2018 deadline for submission of the revised Ekati mine ICRP and Reclamation Research Plan. We also note the Board's continued focus on ensuring the reclamation securities held by the GNWT support the full anticipated cost of closure and reclamation. While Dominion Diamond's overall commitment to closure and reclamation remains encouraging, the legacy of mining projects in the North demonstrates that environmental liabilities should never be allowed to exceed the posted security.

In April 2014, the Government of Canada devolved responsibility for the management of land and water resources in the Northwest Territories to the GNWT. The administration of water resources and any assigned reclamation securities for water was subsequently delegated to ENR, while the administration of land

resources and any assigned securities for land was delegated to the Department of Lands. The assessment of environmental liabilities is complex and assigning reclamation securities separately between land and water would further increase the complexities. The Agency agrees with Dominion Diamond that having all WLWB reclamation securities assigned under the Ekati mine Water Licence is preferable, and encourages ENR to work with Lands to develop a legal or policy means for this assignment to continue.

The Agency considers the lack of a single, comprehensive site-wide closure and reclamation plan and continued slippage of reclamation research to be serious issues. While there have been a number of updates and modifications to various components of the ICRP over the years, the Plan is now effectively spread over a number of documents making it increasingly difficult to track progress, rationale and implications of any changes in reclamation planning and research.

The anticipated submission of an updated ICRP and Reclamation Research Plan in July 2018 represents a significant milestone in closure and reclamation planning at the Ekati mine. The Agency looks forward to participating in the review of these plans in cooperation with Dominion Diamond, our Aboriginal Society Members, government regulators and stakeholders.

The Agency acknowledges Dominion Diamond's efforts to reclaim the Old Camp site as outlined in the 2014 Old Camp Closure and Reclamation Plan. We look forward to completion of the reclamation activities in 2018 and to receiving a Reclamation Completion Report summarizing how the site was reclaimed and outlining the post-closure environmental monitoring planned for the site.

ASSESSMENT OF THE REGULATORS

HIGHLIGHTS



Department of Fisheries and Oceans Canada (DFO) level of involvement in the environmental regulation of the Ekati mine was disappointing.



Government of the Northwest Territories Department of Environment and Natural Resources' participation in the Misery Underground (MUG) and Potassium Effluent Quality Criteria (EQC) Amendment Applications provided valuable contributions to the regulatory processes.



Wèk'eezhì Land and Water Board (WLWB) ran comprehensive, efficient processes for the Misery Underground (MUG) and Potassium EQC Amendment processes.

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

The Regulators and Our Mandate

As the public watchdog for environmental management at the Ekati mine, the Agency monitors the performance of the operator as well as agencies that regulate the mine. The following are our comments regarding the regulators' performance in 2017-18.

Agency's Overall Assessment

As in previous years, the regulators as a whole remain effective in ensuring that Dominion Diamond operates the Ekati mine in an environmentally sound manner. The majority of regulators' time and expertise during 2017-18 was focused on the finalization of the Jay Project Water Licence, Misery Underground (MUG) and Potassium amendment applications, various responses plans, Pigeon waste rock expansion, Jay Project Co-placement study, and the Sable Aquatic Effects Monitoring Program (AEMP) Design Plan. Over the course of the year, the Agency identified some instances where we felt that government agencies and regulators performed well and some instances where their involvement could have been improved.

Government of the Northwest Territories

Department of Lands: The Agency is pleased that a regular inspections routine was maintained in 2017-18 (14 water licence and 10 land use permit inspections). The inspections for Ekati mine continue to be thorough and effective.

Department of Environment and Natural Resources (ENR): The Agency is pleased the Department is working on several important initiatives including changes to the *Environmental Protection Act*, *Wildlife Management Act* and *Waters Act*, and development of Air Quality Regulations and the Bathurst Caribou Range Plan.

- **Water Resources Division:** Consistently made significant contributions to reviews of regulatory applications and management plans with efficient use of consultants and staff expertise. Water Resources involvement often included providing technical information to support their arguments that was not provided by federal government organizations. In the Agency's opinion this input improved participants' understanding of review topics and ultimately benefitted the decision-making as a whole.

- **Conservation, Assessment and Monitoring Division:** This Division is responsible for administering Ekati's Environmental Agreement. The process of updating the Environmental Agreement was initiated in 2015 and is likely to be finalized by the summer of 2018. The process has taken longer than expected.

- **Wildlife Division:** The Wildlife Division has continued to move forward on important regional initiatives regarding caribou in general and the Bathurst herd in particular. Some of these initiatives include changes to the *Wildlife Management Act* (Phase 2) and development of the Bathurst Caribou Range Plan.

- **Environment Division:** The Air Quality Section of the Environment Division provided an interim Dustfall Objective in May 2017 that is intended to set dust deposition standards. The Objective is in response to a measure in the Report of Environmental Assessment for the Jay Project. The Environment Division is also continuing work developing an air quality regulatory process for the NWT.

Indigenous and Northern Affairs Canada

Following devolution of its land and water management responsibilities to the Government of the Northwest Territories (GNWT), Indigenous and Northern Affairs Canada (INAC) has a much-diminished role in environmental regulatory processes including involvement with the Environmental Agreement. As mentioned in last year's annual report, the GNWT and INAC are in the process of amending the Environmental Agreement to align with the new delegation of responsibilities. INAC will remain a signatory to the updated Environmental Agreement, expected to be signed by the summer of 2018. Each year the Agency hosts an Annual General Meeting and at least one Environmental Agreement Implementation meeting. Unfortunately, INAC did not participate in either of these meetings in 2017-18. The Agency would welcome INAC's re-engagement so they can remain informed of the Agency's work regarding the Ekati mine.

Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) receive all the documents circulated for review, however their response on review items has been superficial. DFO did participate in and attend the MUG and Potassium EQC Amendment Public Hearings but provided limited input. Over the course of the year there have been several response plans triggered by the Aquatic Response Framework; DFO did not provide any feedback on these plans despite their considerable expertise and mandate in these areas.

Overall, DFO's participation in the regulatory processes for the Ekati mine in 2017-18 has been poor. The Agency is hopeful that with the new changes to the *Fisheries Act* we can once again benefit from full participation by DFO in the regulatory and monitoring processes.

Environment and Climate Change Canada

Environment and Climate Change Canada's (ECCC) involvement in the regulatory processes for the Ekati mine in 2017-18 has improved from the previous year. The Agency was pleased that ECCC commented on the majority of review items relevant to its mandate including the 2016 AEMP Annual Report, Sable AEMP Re-evaluation, Pigeon AEMP Memo regarding design changes and all of the Aquatic Response Plans that were submitted over the course of the year. In regards to the MUG and Potassium EQC amendment applications, ECCC actively participated in the technical sessions and public hearing as well as submitted interventions.

That being said, the Agency felt that in the Potassium EQC public hearing the regulators would have benefited from greater involvement by department staff during discussion about ECCC's protocols for developing Site Specific Water Quality Objectives and the Species Sensitivity Distribution.

ECCC has circulated draft changes to the federal Metal Mining Effluent Regulations. The draft regulations, if approved, would now include diamond mining. ECCC is targeting the summer of 2018 for the publication of the amendments to the Metal Mining Effluent Regulations.

Wèk'eezhìi Land and Water Board

The Agency is pleased with the WLWB's handling of the Jay Project, MUG and Potassium EQC water licence and land use permit processes. Based on the draft and final licences circulated by the WLWB it is clear that reviewers' comments and concerns were considered and taken into account during the decision-making processes. In addition, the Agency is pleased that the WLWB combined the MUG and Potassium EQC amendment application processes. This allowed the Agency, and other regulators, to combine resources resulting in efficiencies that reduced costs for reviewers and proponents alike. In addition to conducting the regulation of the licence and permits the WLWB has also completed DRAFT Guidelines for Adaptive Management – A Response Framework for Aquatic Effects Monitoring, which is currently being circulated for reviewer input.

The WLWB completed updates on a number of guidelines:

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

The one concern the Agency had with the WLWB in 2017-18 was a tendency to hold onto documents submitted by Dominion Diamond for weeks or months before releasing them for review. The Agency understands that the WLWB must have some discretion regarding the posting of documents based on existing work load. However, there were occasions when release to reviewers of time sensitive documents was delayed resulting in an unnecessary urgency during the review and comment process. This could have been avoided if the review process was initiated earlier.

ASSESSMENT OF DOMINION DIAMOND EKATI ULC

HIGHLIGHTS



Dominion Diamond was generally responsive to written comments on management plan submissions, but reluctant to discuss concerns in a meaningful way during technical sessions and public meetings.



Dominion Diamond has consistently updated its 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 operate the Ekati mine in compliance with its licence and permits.

Over the course of the 2017-18 review period, Dominion Diamond was generally responsive, with a few exceptions, in terms of document reviews and written comments. However, as mentioned last year with the Jay Project process, the Agency again felt that Dominion Diamond's discussions during meetings related to the MUG and Potassium EQC amendments were unnecessarily dismissive and did not always directly respond to the questions asked. In particular, the Agency was disappointed by Dominion Diamond's lack of response to the Agency's requests during the potassium EQC amendment process that a back-calculated EQC for potassium be provided to demonstrate that the downstream Site-Specific Water Quality Objective (SSWQO) would not be exceeded. An adequate response was not provided until very late in the regulatory review process and only after the WLWB directed that it be provided. This resulted in insufficient opportunity for parties to discuss the response. The Agency considers this type of delayed response to be unfortunate and hopes that it can be avoided in the future.

There were several waste rock storage area (WRSA) reviews in 2017-18 where the Agency raised concerns about modelling methodologies, neutralization potential and a lack of data to predict potential effects of the WRSAs on the receiving environment. At the Agency's request, Dominion Diamond agreed to host a meeting to discuss the concerns raised. The Agency noted that Dominion Diamond has made some changes based on concerns, including re-designing the Pigeon WRSA cover to ensure complete till coverage; improved methods for calculating internal heat development within the WRSA; and conducting a geotechnical assessment of the Misery WRSA. The Agency considers these to be positive initiatives and looks forward to working with Dominion Diamond to further improve overall understanding of WRSAs.

On the other hand, the Agency was disappointed with Dominion Diamond's responses to requests to improve monitoring of WRSA seepage by installing instrumentation to monitor the quantity and quality of groundwater leaving the WRSA piles through the thawed active layer. This is critical information that would help inform the water balance for the WRSAs, something that the Agency considers to be of primary importance when assessing the potential impact of WRSAs on the environment.

"...the Agency again felt that Dominion Diamond's discussions during meetings related to the MUG and Potassium EQC amendments were unnecessarily dismissive and did not always directly respond to the questions asked."

RESPONSIBILITY STATEMENT

The management of Independent Environmental Monitoring Agency is responsible for preparing the financial statements, the notes to the financial statements and other financial information contained in this report.

Management prepares the financial statements in accordance with Canadian accounting standards for not-for-profit organizations. The financial statements are considered by management to present fairly the management's financial position and results of operations.

The organization, in fulfilling its responsibilities, has developed and maintains a system of internal accounting controls designed to provide reasonable assurance that management assets are safeguarded from loss or unauthorized use, and that the records are reliable for preparing the financial statements.

The financial statements have been reported on by Crowe MacKay LLP, Chartered Professional Accountants, the Agency's auditors. Their report outlines the scope of their examination and their opinion on the financial statements.



Kim Poole, Secretary Treasurer

August 2, 2018



Pigeon Pit

INDEPENDENT AUDITORS' REPORT

To the Members of Independent Environmental Monitoring Agency

We have audited the accompanying financial statements of Independent Environmental Monitoring Agency, which comprise the statement of financial position as at March 31, 2018, and the statements of operations, changes in net assets and cash flows for the year then ended, and a summary of significant accounting policies and other explanatory information.

Management's Responsibility for the Financial Statements

Management is responsible for the preparation and fair presentation of these financial statements in accordance with Canadian accounting standards for not-for-profit organizations, and for such internal control as management determines is necessary to enable the preparation of financial statements that are free from material misstatement, whether due to fraud or error.

Auditors' Responsibility

Our responsibility is to express an opinion on these financial statements based on our audit. We conducted our audit in accordance with Canadian auditing standards. Those standards require that we comply with ethical requirements and plan and perform the audit to obtain reasonable assurance about whether the financial statements are free from material misstatement.

An audit involves performing procedures to obtain audit evidence about the amounts and disclosures in the financial statements. The procedures selected depend on the auditors' judgment, including the assessment of the risks of material misstatement of the financial statements, whether due to fraud or error. In making those risk assessments, the auditors consider internal control relevant to the Agency's preparation and fair presentation of the financial statements in order to design audit procedures that are appropriate in the circumstances, but not for the purpose of expressing an opinion on the effectiveness of the Agency's internal control.

An audit also includes evaluating the appropriateness of accounting policies used and the reasonableness of accounting estimates made by management, as well as evaluating the overall presentation of the financial statements.

We believe that the audit evidence we have obtained is sufficient and appropriate to provide a basis for our audit opinion.

Opinion

In our opinion, the financial statements present fairly, in all material respects, the financial position of Independent Environmental Monitoring Agency as at March 31, 2018, and the results of its operations and its cash flows for the year then ended in accordance with Canadian accounting standards for not-for-profit organizations.

Crowe Mackay LLP

Chartered Professional Accountants

Yellowknife, Canada

August 2, 2018

STATEMENT OF OPERATIONS

For the year ended March 31
See accompanying notes.

REVENUES	2018	2017
Core fund - Dominion Diamond Ekati Corporation	\$646,715	\$635,075
Seperate fund - Dominion Diamond Ekati Corporation	\$1,615	\$1,641
Interest income	\$40,000	\$40,000
	\$688,330	\$676,716
EXPENDITURES		
Advertising and promotion	\$13,116	\$18,903
Amortization	\$1,716	\$3,817
Auditing and bookkeeping fees	\$19,778	\$19,681
Board support		
- honoraria	\$160,650	\$151,482
- travel, meals and accomodations	\$42,431	\$32,500
Community consultation		
- annual general meeting	\$19,283	\$12,855
- annual report	\$32,533	\$25,216
- community visits	\$30,928	\$18,196
Consultants	\$26,570	\$19,208
Equipment	\$87	\$3,248
Insurance	\$2,928	\$6,522
Office supplies	\$21,422	\$13,792
Postage and courier	\$233	\$ 910
Professional development	\$499	\$ 1,269
Rent- facility rental	\$1,335	\$ 945
Rent- office and maintenance	\$31,500	\$ 31,500
Separate fund		
- honoraria	\$19,883	\$ 81,764
- travel and administration	\$2,609	\$ 21,052
Staff recruitment	\$4,550	\$2,821
Staff travel	\$297	\$ 1,289
Telephone and fax	\$297	\$ 5,814
Travel	\$6,734	\$ -
Wages and benefits	\$221,538	\$227,453
	\$660,620	\$636,141
EXCESS OF REVENUES OVER EXPENDITURES BEFORE OTHER ITEMS	\$27,710	\$33,005
OTHER ITEMS		
Aquisition of tangible capital assets	\$-	\$5,250
Unspent funding - core	(\$10,203)	(\$38,255)
Unspent funding - separate fund	(\$17,507)	\$-
	(\$27,710)	(\$25,880)
EXCESS OF REVENUES OVER EXPENDITURES	\$-	\$-

STATEMENT OF CHANGES IN NET ASSETS

For the year ended March 31
See accompanying notes.

	2018			2017		
	Total	Unrestricted Funds	Tangible Capital Asset Fund	Total	Unrestricted Funds	Tangible Capital Asset Fund
BALANCE, BEGINNING OF YEAR	\$12,086	\$6,939	\$5,147	\$12,086	\$5,461	\$6,625
Excess of revenues over expenditures	\$-	\$-	\$-	\$-	\$-	\$-
Acquisition of tangible capital assets	\$-	\$1,716	(\$1,716)	\$-	(\$2,339)	\$2,339
Amortization	\$-	\$3,817	(\$3,817)	\$-	\$3,817	\$3,817
BALANCE, END OF YEAR	\$12,086	\$8,655	\$3,431	\$12,086	\$6,939	\$5,147

STATEMENT OF FINANCIAL POSITION

For the year ended March 31
See accompanying notes.

Approved on behalf of the
board:



Jaida Ohokannoak, Chairperson



Kim Poole, Secretary-Treasurer

ASSETS

CURRENT

Cash
Term Deposits
Restricted cash (note 3)
Prepaid expenses

2018	2017
\$124,546	\$50,982
\$-	\$15,586
\$376,561	\$371,576
\$2,473	\$4,052
\$503,580	\$442,196

TANGIBLE CAPITAL ASSEST (NOTE4)

\$3,431	\$5,147
---------	---------

\$507,011	\$447,343
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LIABILITIES

CURRENT

Accounts payable and accrued liabilities (note 5)
Deferred revenue (note 6)
Contributions repayable (note 7)

\$118,364	\$63,681
\$348,851	\$343,357
\$27,710	\$28,219
\$494,925	\$435,257

FUND BALANCES

UNRESTRICTED FUND
TANGIBLE CAPITAL FUND

\$8,655	\$6,939
\$3,431	\$5,147
\$12,086	\$12,086
\$507,011	\$447,343

Commitments (note 8)

STATEMENT OF CASH FLOWS

For the year ended March 31
See accompanying notes.

	2018	2017
ASSETS		
CASH PROVIDED BY (USED FOR)		
OPERATING ACTIVITIES		
Excess of revenues over expenditures	\$-	\$-
Item not affecting cash		
Amoritization	\$1,716	\$247
	1,716	3,817
Change in non-cash working capital items		
Accounts receivable	\$-	\$247
Prepaid expenses	\$1,579	(\$217)
Accounts payable and accrued liabilities	\$54,683	(\$62,566)
Deferred revenue	\$5,494	\$5,835
Contributions repayable	(\$509)	(\$10,036)
	\$62,963	(62,920)
CAPITAL ACTIVITY		
Purchase of tangible capital assets	\$-	(\$2,339)
INCREASE (DECREASE) IN CASH	\$62,963	(\$65,259)
CASH, BEGINNING OF YEAR	\$438,144	\$503,403
CASH, END OF YEAR	\$501,107	\$438,144
CASH AND CASH EQUIVALENTS CONSIST OF		
Cash	\$124,546	\$50,982
Term deposits	\$-	\$15,586
Restricted cash	\$376,561	\$371,576
	\$501,107	\$438,144

NOTES TO THE FINANCIAL STATEMENTS

For the year ended March 31
See accompanying notes.

1. Nature of operations

Independent Environmental Monitoring Agency (the "Agency") is a not-for-profit organization incorporated under the *Societies Act* of the Northwest Territories. It is exempt from income tax under Section 149(1) of the *Income Tax Act*.

The mission of the Agency is to oversee environmental management at the Ekati Diamond mine site in the Northwest Territories.

2. Significant accounting policies

These financial statements are prepared in accordance with Canadian accounting standards for not-for-profit organizations. The significant policies are detailed as follows

(A) CASH EQUIVALENTS

The Agency considers all highly liquid investments with a maturity of three months or less at the time of purchase to be cash equivalents. These cash equivalents consist primarily of term deposits and certificates of deposit.

(B) TANGIBLE CAPITAL ASSETS

Tangible capital assets are recorded at cost. The Agency provides for amortization using the declining balance method at rates designed to amortize the cost of the assets over their estimated useful lives, as set out in note 6.

When tangible capital assets are sold or retired, the related cost and accumulated amortization are removed from the accounts and any gain or loss is charged against earnings in the period.

Tangible capital assets acquired or constructed during the year are not amortized until they are put into use.

One half of the year's amortization is recorded in the year of acquisition. No amortization is recorded in the year of disposal.

(C) DEFERRED REVENUE

Contributions received in advance are deferred. The amounts will be taken into income as services and goods are acquired.

(D) FUND ACCOUNTING

The Unrestricted Fund reports revenues from and expenditures of unrestricted contributions to be used for general operations.

NOTES TO THE FINANCIAL STATEMENTS

For the year ended March 31
See accompanying notes.

The Tangible Capital Asset Fund reports the balances, activities, and transactions relating to tangible capital assets of the Agency.

(E) REVENUE RECOGNITION

The Agency follows the deferral method of accounting for contributions. Restricted contributions are recognized as revenue in the year in which the related expenses are incurred. Unrestricted contributions are recognized as revenue when received or receivable if the amount to be received can be reasonably estimated and collection is reasonably assured.

Interest income is recognized when earned.

(F) FINANCIAL INSTRUMENTS

Financial assets originated or acquired or financial liabilities issued or assumed in an arm's length transaction are initially measured at their fair value. In the case of a financial asset or financial liability not subsequently measured at its fair value, the initial fair value is adjusted for financing fees and transaction costs that are directly attributable to its origination, acquisition, issuance or assumption. Such fees and costs in respect of financial assets and liabilities subsequently measured at fair value are expensed.

The Agency subsequently measures the following financial assets and financial liabilities at amortized cost:

Financial assets measured at amortized cost include cash, term deposits and accounts receivable.

Financial liabilities measured at amortized cost include accounts payable and accrued liabilities and contributions repayable.

At the end of each reporting period, management assesses whether there are any indications that financial assets measured at cost or amortized cost may be impaired. If there is an indication of impairment, management determines whether a significant adverse change has occurred in the expected timing or the amount of future cash flows from the asset, in which case the asset's carrying amount is reduced to the highest expected value that is recoverable by either holding the asset, selling the asset or by exercising the right to any collateral. The carrying amount of the asset is reduced directly or through the use of an allowance account and the amount of the reduction is recognized as an impairment loss in operations. Previously recognized impairment losses may be reversed to the extent of any improvement. The amount of the reversal, to a maximum of the related accumulated impairment charges recorded in respect of the particular asset, is recognized in operations.

(G) USE OF ESTIMATES

The preparation of financial statements in conformity with Canadian accounting standards for not-for-profit organizations requires management to make estimates and assumptions that affect the reported amount of assets and liabilities and disclosure of contingent assets and liabilities at the date of the

NOTES TO THE FINANCIAL STATEMENTS

For the year ended March 31

See accompanying notes.

financial statements and the reported amount of revenues and expenses during the reporting period. These estimates are reviewed periodically, and, as adjustments become necessary, they are reported in operations in the period in which they become known.

3. Restricted cash

Restricted cash represents cash received from Dominion Diamond Ekati Corporation that is intended for a specific purpose or represents the amount to repay.

	2018	2017
Cash received in advance for the 2017/2018 fiscal year	\$348,851	\$343,357
Cash repayable from 2016/2017 surplus	\$27,710	\$28,219
	\$376,561	\$371,576

4. Tangible capital assets

				2018	2017
	Rate	Cost	Accumulated amortization	Net book value	Net book value
Equipment	20%	\$13,065	\$ 11,381	\$1,684	\$2,105
Computer equipment	30-55%	\$ 8,521	\$7,832	\$689	\$1,530
Website	30%	\$15,120	\$14,062	\$1,058	\$1,512
		\$36,706	\$33,275	\$3,431	\$5,147

5. Accounts payable and accrued liabilities

	2018	2017
Accounts payable and accrued liabilities	\$33,334	\$102,252
Government remittances	\$16,404	\$16,243
Salaries and benefits payable	\$13,943	\$7,752
	\$63,681	\$126,247

NOTES TO THE FINANCIAL STATEMENTS

For the year ended March 31
See accompanying notes.

6. Deferred revenue

Deferred revenue consists of payments received in advance and is intended for the upcoming fiscal year expenditures.

	2018	2017
Received from Dominion Diamond Ekati Corporation	\$348,851	\$343,357

7. Contributions repayable

	2018	2017
Dominion Diamond Ekati Corporation core funding repayable	\$10,203	\$28,219
Dominion Diamond Ekati Corporation separate funding repayable	\$17,507	\$-
	\$27,710	\$28,219

Contributions repayable arising from one fiscal year are normally deducted from contributions provided by Dominion Diamond Ekati Corporation in the following fiscal year. In the year, the Agency had excess contributions of \$27,710, which is to be deducted from the 2018/2019 contributions.

8. Commitments

As at March 31st, 2018 the Agency has an operating lease (month-to-month) for office space; there are no immediate plans for changes in rental agreements nor location. The payment for the next year is based on the existing month-to-month contract is \$31,500 (2017 - \$31,500).

9. Economic dependence

The Agency receives 100% (2017 - 100%) of its revenue from Dominion Diamond Ekati Corporation. Management is of the opinion that operations would be significantly affected if the funding was substantially curtailed or ceased. The funding arrangement with the owners of the mine is governed by legislation.

10. Comparative figures

The financial statements have been reclassified, where applicable, to conform to the presentation used in the current year.

NOTES TO THE FINANCIAL STATEMENTS

For the year ended March 31
See accompanying notes.

11. Financial instruments

Transactions in financial instruments may result in an entity assuming or transferring to another party one or more of the financial risks described below. The required disclosures provide information that assists users of financial statements in assessing the extent of risk related to financial instruments.

(A) CREDIT RISK

Credit risk is the risk that one party to a transaction will fail to discharge an obligation and cause the other party to incur a financial loss. The Agency does have credit risk in cash, cash equivalents, term deposits, and restricted cash of \$501,107 (2017 - \$438,144) as a result of having funds with one chartered bank in excess of the insurable limit. Furthermore, the Agency has a concentration of credit risk as full balance of cash is held at one financial institution. This risk has not changed from the prior year.

(B) LIQUIDITY RISK

The Agency does have a liquidity risk in the accounts payable and accrued liabilities and contributions repayable of \$146,074 (2017 - \$91,900). Liquidity risk is the risk that the Agency cannot repay its obligations when they become due to its creditors. This risk has not changed from the prior year.

SUMMARY 2018-19 & 2019-20

Summary Work Plan and Core Budget 2017-18 and 2018-19

The work plan for 2018-19 is based on the direction and feedback received from our Society Members at our annual general meeting (AGM) and the Agency's own initiatives.

The second year of the work plan, 2019-20, will be refined and modified based on direction received during next year's AGM, and any changes or modifications to activities at the Ekati mine.

Dominion Diamond Ekati ULC (Dominion Diamond), as the owner of Ekati Mine, is solely responsible for funding the Agency in accordance with the 2006 Resolution Agreement. The Agency's budget for 2018-19 is \$697,702 while the budget for 2019-20 is projected to be \$704,679, which reflects an assumed increase in Canada's Annual Consumer Price Index (CPI) of 1.0%.

Table 6: Core Budgets 2018-19 and 2019-20

ACTIVITY	FORECASTED 2017-18	PROPOSED 2018-19	PROPOSED 2019-20
Board Meetings	\$72,108	\$68,840	\$69,528
Review of Documents	\$59,433	\$74,960	\$74,174
Separate Fund	\$22,493	\$40,000	\$40,000
Communications	\$159,256	\$165,310	\$167,973
Outside Contracts	\$20,559	\$13,000	\$10,000
Mgmt and Admin	\$321,497	\$324,380	\$327,620
Total	\$656,299	\$697,665	\$704,140
(approved)	\$686,490	\$697,702	\$704,679

Major Activities

Board Meetings and Conference Calls

Board meetings are held three to four times per year. They provide an opportunity for Directors to discuss, review, and make recommendations on recent, ongoing and anticipated initiatives. Guests are invited to meetings to provide updates and receive input on their specific activities. Dominion Diamond, Wek'èezhì Land and Water Board (WLWB), and Government of the Northwest Territories (GNWT) inspectors are regular guests.

Proposed Activities 2018-19: Annually, three to four board meetings, including follow up and administration.

REVIEW OF REPORTS, PLANS AND PROGRAMS, AND IMPLEMENTATION OF THE ENVIRONMENTAL AGREEMENT

Directors review and make recommendations on the major reports, programs, studies and plans required under the Environmental Agreement, water licences, and other regulatory approvals.

Proposed Activities 2018-19: The Agency expects to review the following reports:

- The regular environmental monitoring annual reports for 2017 under the Environmental Agreement and water licence;
- Interim Closure and Reclamation Plan;
- Aquatic Response Framework – Response Plans;
- Air Quality Emission Monitoring and Management Plan (consolidated)
- Interim Closure and Reclamation Plan Annual Progress Report;
- Dust Suppression Pilot Project Interim Report;
- Various management plans and updates including the Caribou Road Management Plan; Wildlife Management Plan; Air Quality and Emissions Monitoring and Mitigation Plan and the Waste Rock and Processed Kimberlite Management Plan

There is also the Implementation meeting with Dominion Diamond, GNWT, Indigenous and Northern Affairs Canada, and the Agency which focuses on the implementation of the Environmental Agreement.

A similar workload is expected in 2019-20.

SEPARATE FUND ACTIVITIES

The Resolution Agreement establishes a Separate Fund of up to \$40,000 per year for Agency expenses where a public hearing is reasonably assured as indicated in approved work plans or budgets, or as confirmed by a regulatory body.

Proposed Activities 2018-19: There currently is no Public Hearing process expected for 2018-2019.

The Agency is not expecting a public hearing process for 2019-20.

CONSULTATION AND COMMUNICATION

Consultation and communications with our Society Members and the general public is an important part of the Agency's mandate.

Proposed Activities 2018-19: The Agency will maintain its visits to communities. The Agency will continue to produce technical and plain language annual reports, a pamphlet summarizing the annual reports for distribution to all households, and attend workshops and meetings relevant to our mandate. The Agency will continue to maintain its website, the Ekati Timeline and public registry. The Agency will also be implementing other parts of our Communications Plan including printed material.

Similar activities are anticipated in 2019-20.

OUTSIDE CONTRACTS

On occasion, the Agency turns to other experts to help review reports, studies, and plans.

Proposed Activities 2018-19: It is difficult to predict what, if any, outside expertise the Agency may commission, but expects the review of the Interim Closure and Reclamation Plan may require some outside expertise.

MANAGEMENT AND ADMINISTRATION

The Agency provides the majority of its management and administrative services through its Yellowknife office and staff of an Executive Director and a Communications and Administration Specialist. The Agency manages its own office space and equipment.

Proposed Activities 2018-19: Maintain current staff and benefit levels.

The same activities are anticipated in 2019-20.

ACRONYMS & GLOSSARY

AEMP – Aquatic Effects Monitoring Program

AQMP – Air Quality Monitoring Program

AQEMMP – Air Quality and Emissions Monitoring and Management Plan

AES – Aquatic Ecology Synthesis

ARD – Acid Rock Drainage

ARF – Aquatic Response Framework

CAM – Continuous Air Monitoring

CCME – Canadian Council of Ministers of the Environment

CIMP – Cumulative Impact Monitoring Program

CPI – Consumer Price Index

CRMP – Caribou Road Mitigation Plan

CPKSA – Coarse Processed Kimberlite Storage Area

DDEC – Dominion Diamond Ekati Corporation (“the company”)

DFO – Fisheries and Oceans Canada

DO – Dissolved Oxygen

DNA – deoxyribonucleic acid

EQC – Effluent Quality Criteria

ECCC – Environment and Climate Change Canada

EIR – Environmental Impact Report

EMAB – Environmental Monitoring Advisory Board

ENR – Department of Environment and Natural Resources (GNWT)

EPA – NWT Environmental Protection Act

GNWT – Government of the Northwest Territories

GTC – Ground Temperature Cable

HVAS – High volume Air Samplers

IACT – Inter-Agency Coordinating Team

ICRP – Interim Closure and Reclamation Plan

INAC – Indigenous and Northern Affairs Canada

KIA – Kitikmeot Inuit Association

KPSF – King Pond Settling Facility

LKDFN – Lutselk’e Dene First Nation

LLCF – Long Lake Containment Facility

LUP – Land Use Permit

MVEIRB – Mackenzie Valley Environmental Impact Review Board

NSMA – North Slave Métis Alliance

NWT – Northwest Territories

PAG – Potential Acid Generating

PDC – Panda Diversion Channel

PK – Processed Kimberlite

PSD – Pigeon Stream Diversion

QA/QC – Quality Assurance/Quality Control

REA – Report of Environmental Assessment

Review Board – Mackenzie Valley Environmental Impact Review Board

SLEMA – Snap Lake Environmental

Monitoring Agency

SNP – Surveillance Network Program

SSMMP – Suspended Sediment Monitoring and Management Plan

TK – Traditional Knowledge

TKEG – Traditional Knowledge Elders Group

TOC – total Organic Carbon

TDS – Total Dissolved Solids

TSP – Total Suspended Particulate

TSS – Total Suspended Solids

WEMP – Wildlife Effects Monitoring Program

WEMPlan – Wildlife Effects Monitoring Plan

WLWB – Wek’èezhìi Land and Water Board

WPKMP – Wastewater and Processed Kimberlite Management Plan

WPOMP – Wastewater and Processed Kimberlite Management Plan

WRSA – Waste Rock Storage Area

YKDFN – Yellowknives Dene First Nation

VEC – Valued Ecosystem Component

ZOI – Zone of Influence

Action Levels – A predetermined change, to a monitored variable or other qualitative or quantitative measure that requires the Licensee to take appropriate actions that may include, but that are not limited to: further investigations, changes to operations, or enhanced mitigation measures.

Adaptive Management – A management system with continual monitoring so that if initial mitigation measures are ineffective, additional or alternative mitigation is applied to keep the impact within acceptable levels.

Benthos – The sediments and mud at the bottom of rivers, lakes and ponds that can contain living organisms. Benthic invertebrates such as mosquito larvae are an important food source for small fish.

Chloride – Salt resulting from the combination of the gas chlorine with a metal. Fish and aquatic communities cannot survive in water with high levels of chlorides.

Cladocera – An order of small crustaceans (i.e., zooplankton) that live in water (commonly called water fleas).

Consultation – (i) The provision, to the party to be consulted, of notice of a matter to be decided in sufficient form and detail to allow that party to prepare its views on the matter;

(ii) The provision of a reasonable period of time in which the party to be consulted may prepare its views on the matter, and provision of an opportunity to present such views to the party obliged to consult; and
(iii) Full and fair consideration by the party obliged to consult of any views presented.

Environmental Agreement

– Created as a legally binding instrument to provide monitoring and input into management practices not covered by other authorizations. Parties include BHPB and the federal and territorial governments. Akaitcho Treaty 8 First Nations (LKDFN and YKDFN), Kitikmeot Inuit Association, North Slave Métis Alliance and Tłı̨cho, Government were involved in the negotiations.

Hydrocarbons – Organic compounds which contain only hydrogen and carbon. This includes fossil fuels (i.e., coal, petroleum and natural gas) as well as their derivatives, such as plastics, solvents and oils.

Kimberlite – A rare, potentially diamond bearing iron and magnesium rich rock from deep in the earth’s mantle. Kimberlites are generally found as vertical pipe-like structures.

Molybdenum – A metal that can affect trout just after they hatch.

Nitrate – A nutrient, like a fertilizer, derived from nitrogen. Nitrate can affect the growth of baby fish if it gets too high.

Phytoplankton – Microscopic plants (e.g., algae) found in freshwater and ocean environments. They are an important food source for zooplankton.

Processed Kimberlite – The waste material and water mixture that is left over after the mill removes the diamonds from the ore. Also referred to as “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).

Reclamation – The recovery to viable ecosystems of areas of land and water bodies that have been disturbed during mining.

Schist – A large group of coarse-grained metamorphic rocks which readily split into thin plates or slabs as a result of alignment of lamellar or prismatic minerals.

Slave Geological Province – Area between the City of Yellowknife and the Arctic coast.

Tailings – See “Processed Kimberlite”.

Total Suspended Particulates – The fraction of airborne particulates that will remain airborne after their release in the atmosphere.

Valued Ecosystem Component

– Environmental element of an ecosystem that is identified as having scientific, social, cultural, economic, historical, archaeological or aesthetic importance.

Waste Rock – Rock containing diamonds but too low in grade to be mined or processed economically. Also other rock that must be removed to access kimberlite pipes.

Waste Rock Seepage – Water that drains through the waste rock piles. This water may pick up contaminants as it touches the waste rock and may enter the receiving environment.

Wastewater – Water that contains wastes from the mining process, including sewage and chemicals from explosives.

Zone of Influence – Area of reduced caribou occupancy.

Zooplankton – The small, mostly microscopic animals that live suspended in freshwater (and ocean) environments. Zooplankton feed on phytoplankton and small particles in the water. They are an important food source for small fish.



2018 ANNUAL REPORT

A PUBLIC WATCHDOG FOR ENVIRONMENTAL
MANAGEMENT AT EKATI DIAMOND MINE

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INDEPENDENT ENVIRONMENTAL
MONITORING AGENCY

