Independent
Environmental
Monitoring Agency

PUBLIC WATCHDOG OF EKATI DIAMOND MINE

2023-24 ANNUAL REPORT

Independent Environmental Monitoring Agency

A PUBLIC WATCHDOG FOR
ENVIRONMENTAL MANAGEMENT
AT EKATI DIAMOND MINE

Message from the Chair

I am pleased to present the 2023-24 annual report of the Independent Environmental Monitoring Agency. This report summarizes our activities over the past year and provides an assessment of how environmental management is being conducted at the Ekati Diamond Mine.

This year marked 25 years of successful operations at the Ekati mine. The Agency congratulates the owners and operators of the mine in achieving this significant milestone.

The announcement of the first kimberlite pipe found in the Lac de Gras region by Chuck Fipke, Stewart Blusson and their corporate partner BHP Minerals in 1991 near the site of the current Point Lake Project initiated the largest mineral staking rush in Canada since the Klondike gold rush. Following further planning and development, the Ekati mine began operations in October 1998. Since then, the mine has changed owners on four occasions, the latest being in July 2023 when Burgundy Diamond Mines Limited purchased full control of the Ekati mine from Arctic Canadian Diamond Company.

After 25 years of mining, the current life of mine plan suggests that operations could end as early as 2029 unless additional sources of diamonds are developed. There are currently two active mining operations at Ekati located at the Sable Open Pit and Misery Underground and work is underway to open the new Point Lake Project in 2025. While underground mining at the Sable Development is promising for extending the current mine life, continued uncertainties demonstrate the practical need for financial securities to be maintained and mine closure planning to proceed with a reasonable measure of haste to ensure the Public Interest is protected.

The Agency again encourages Burgundy Diamond Mines to expedite efforts to advance progressive reclamation and closure planning. We are pleased to also note that significant progress has been made by the Government of the Northwest Territories as a public review of Ekati's closure and reclamation financial liabilities has been completed together with an internal review of the financial securities held on behalf of Burgundy under the *Mackenzie Valley Resource Management Act, Waters Act and Lands Act.*

The Agency invites you to review this report and contact us if you have any questions, comments or concerns about the Ekati mine, or if you wish the Agency to meet with your organization or community.

Emery Paquin
Chairperson

Esker at Ekati mine site.

Fresh water

Used onsite for road watering and accommodations

213,700 m³ Used

169.8 $ktCO_2e$

of Greenhouse gases emitted in 2023

3% increase from 2022

AMOUNT WATER DISCHARGED IN 2023

King Pond Settling Facility to Cujo Lake

790,000 m³

Amount of **WASTE ROCK PRODUCED**

17.6 MILLION

wet metric tonnes in 2023

(Compared to 21.7 million wet metric tonnes in 2022)

Amount of **ORE PROCESSED**

4.2 MILLION

tonnes in 2023

(Compared to 3.8 million tonnes in 2022)

Director looking out over Lac du Sauvage.

Plain Language Summary

Current Activities

Through 2023, the mine processed kimberlite ore from Sable Open Pit and Misery Underground.
In July 2023, Burgundy Diamond Mines (current owner) got the permit to start removing overburden and build the Point Lake Waste Rock Storage Area. To prepare for this, they planned to complete lake de-watering during the summer 2024.

In 2023, there was no exploration drilling on the Ekati claim block. In October 2023, Burgundy surrendered its exploration drilling permits on Glowworm and Lac de Gras claim blocks — more than a year before the permits expire.

Future Activities

The plan is to keep the mine operating to 2029. The plan includes:

- Continue open pit activities at Sable to mid-2025.
- Continue underground activities at Misery to the end of 2026.
- Start open pit activities at Point Lake in 2025.

Burgundy has some ideas / plans to expand the mine's life past 2029.

Caribou. Photo taken during site visit. (Dave Brosha)

Wildlife Effects

The Wildlife Effects Monitoring Program (WEMP) documents wildlife presence and management responses.
The WEMP provided detailed reporting on;

- Direct habitat uses.
- Incidental observations.
- Wildlife survey monitoring.
- Food Waste management.
- Wildlife incidents and management actions.
- Systematic surveys along the haul roads and Long Lake Containment Facility.
- Monitoring behaviour and camera surveys along infrastructure and nearby areas.

As the Agency has stated many times in the past, the company needs to integrate these datasets. This would help us better understand caribou movement and distribution at the mine site, and make monitoring more efficient and effective.

Wildlife Observations and Incidents

Compared to previous years:

- Higher number of incidental caribou observations, most during the fall 2023.
- Lower number of incidental wolverine observations.
- Steady increase in number of incidents and management actions directed at grizzly bears. Some involved a deterrent.
- Moose observations more common in recent years: none before 2013 and an average of 11 each year from 2015 to 2023.

Caribou Road Mitigation Plan (CRMP)

The objective of the CRMP is to reduce the impacts on caribou from roads and vehicle traffic. The plan uses caribou observations, and locations and movements of collared caribou near mine infrastructure as Action Level triggers. These initiate more intense monitoring and mitigation.

During 2023, caribou presence within 100 m of roads triggered:

- 1.5-hour closure of an unknown road.
- delays spread over 401 events, mostly along the Sable haul road (63%) and Misery haul road (29%).

As the Agency has noted in the past, it is unclear how often and when collars and observations are used as triggers to change monitoring and mitigation. This limits the ability to evaluate effectiveness of monitoring methods and adaptive management. A better presentation of the trigger(s) to changes in, or maintenance of, alert levels would be useful.

The Agency continues to call for a complete evaluation of the possible barriers to caribou from vehicles and human activity along roads — disturbances that affect sight, sound, and smell. As a welcome first step, Burgundy is doing a telemetry study using collared caribou data to examine the effectiveness of the CRMP.

Traffic Data

Vehicle disturbances on roads is likely one of the main barriers to caribou passing through mine infrastructure. In 2023, dedicated traffic cameras were placed on Misery and Sable haul roads, which collected data for about 70% of the year.

The Agency has repeatedly called for traffic monitoring. We are pleased this is finally happening. This information is important to correlate with caribou monitoring and mitigation data.

Wildlife Management and Monitoring Plan (WMMP)

The WMMP is the updated version of the Wildlife Effects Monitoring Plan.

In June 2022, the process to update the WMMP was started. In November 2022, a draft was sent to the GNWT. In early 2023, there was a workshop and review. Since then, the process has stalled. The Agency looks forward to further progress on this important document.

Aquatic Effects

Each year, the Aquatic Effects Monitoring Program (AEMP) determines if mining activities cause any changes in the aquatic environment — water bodies downstream of the Ekati mine.

Four watersheds may be affected: Koala, King-Cujo, Pigeon-Fay-Upper Exeter, and Horseshoe.

The information collected helps detect changes and trends in:

- Water and sediment quality.
- Benthic macroinvertebrate communities.
- Phytoplankton and zooplankton.
- Fish populations and fish health.

Water and Sediment Quality

Levels of major ions, nutrients and metals are higher downstream of the mine than pre-mining, but have stabilized in the past few years, with some exceptions. The 2023 AEMP noted these changes:

- Chromium levels in Cujo Lake increased to levels well above previous years.
- Increased water hardness and levels of sulphate, nitrate, potassium, barium, nickel, and strontium in Ulu Lake. Burgundy believes this may be due to dust from the Sable Project. Ulu Lake is close to the Sable Development and Waste Rock Pile, but upstream of any wastewater discharge.

Vegetation. Photo taken during site visit.

- For the second year in a row, selenium levels in sediment exceeded several environmental guidelines in lakes downstream of the Long Lake Containment Facility.

Non-compliance with Water Licence

In summer 2023, four criteria of the water license were higher than allowed.

- Two involved high-water volume. See the section on Wastewater and Processed Kimberlite.

- Two involved the discharge of high levels of copper and suspended solids into Cujo Lake. See the section on Aquatics Effects Monitoring.

Air Quality

The Ekati mine monitors air quality to understand how mining activities affect the environment. The air quality monitoring program monitors;

- Weather conditions.
- Greenhouse gas emissions.
- Air pollutants.
- Dust levels.
- Study snow chemistry.
- Lichen tissue.

Overall, air quality remains good at the Ekati mine. Most air quality variables are within the standards, with some exceptions, including:

- Very high dustfall levels continue near the main haul roads.
- The 24-hour standard for total suspended particulate was exceeded nine times between July and September, 2023.
- The 24-hour standard for fine particulate matter was exceeded five times. The last two were greater than in 2022. Burgundy says that particulate and smoke from regional wildfires caused this. The Agency suggests that dust from the Long Lake Containment Facility, roads, and airport runway also helped to cause this. 2023 was a very dry year.

Changes in snow chemistry and lichen tissue as far as 10 km from mine infrastructure, from mining activities during winter months.

Incinerator Emissions Testing

Burgundy was supposed to complete emission stack testing in 2023. This was postponed because of issues related to the 2023 wildfires. The Agency expects the incinerator stack testing to occur during the 2024 summer.

Ambient Air Quality Planning

In March 2024, the Department of Environment and Climate Change, GNWT directed Burgundy to update the Air Quality

Agency visit to Tlicho Annual General Assembly in Whati 2022

Typical road at the Ekati Diamond Mine.

Directors hiking up Jay/Point Lake Esker during site visit.

Management and Monitoring Plan. This was to make it consistent with the new guideline and to engage regulators, Indigenous governments and organizations, and the Agency before they implement any changes. The Agency considers this review and public engagement as very positive steps.

Waste Rock Management

Waste rock is all the rock from mining operations that does not contain diamonds. It is trucked to waste rock storage areas. These large piles of rock stay on the land after mining is done.

In 2023, the Ekati mine has six WRSA's. Burgundy deposited 17.4 million tonnes of waste rock at three of them. This was about 4.1 million tonnes less waste rock than what they deposited last year.

In 2024, Burgundy plans to start another WRSA at Point Lake.

Point Lake Waste Rock Storage Area (WRSA)

Waste rock from the Point Lake pit is different than other waste rock at the Ekati mine. There is more potential to generate acid and release metals and other contaminants in seepage. As a result, seepage must be collected and managed in the King Pond Settling Facility and/or Lynx pit before it is released to the environment. And the WRSA must stay frozen forever.

In November 2023, the Wek'èezhìı Land and Water Board approved the plan to allow Burgundy to start building the Point Lake WRSA. They must install ground temperature monitors. They must also submit updated studies related to the costs and the cover for when the mine closes — to improve freezing and reduce the chance of precipitation getting through the cover.

Seepage Management

In March 2024, Burgundy sent a new Seepage Response Framework to the Wek'èezhìı Land and Water Board for

Directors walking on Jay/Point Lake Esker with Misery WRSA in distance during site visit.

approval. The Framework will work with the existing seepage sampling and monitoring program. It proposes to:

- Set new action levels for seepage water quality.
- Outline pre-determined responses to take when action levels are exceeded.
- Provide an improved early warning system to protect the land where the seeps leave the WRSA, the downstream waterbodies (lakes and streams) and aquatic life (fish, invertebrates, aquatic plants, algae).

The existing management process applies until the new Framework is approved.

Seepage Water Quality Monitoring

The 2023 annual seepage survey report has similar concentrations and seasonal trends (freshet to fall) as historical data. These include:

- Decreasing levels of nitrogen compounds. This suggests progressive flushing of explosive and blasting residue within the WRSAs.
- Changing levels of dissolved metals and other parameters. This suggests chemical weathering or dissolution happens along the internal flow paths.
- A slow, ongoing increase in pH levels (ie. becoming less acidic). This seepage from waste rock piles is on the surface of the land, where you can sample it.

Wastewater and Processed Kimberlite Management

The process plant uses water from the Long Lake Containment Facility to process the diamonds. This produces slurry — a mix of

Directors touring the vegetation trials in Cell B of the Long Lake Containment Area.

water and processed kimberlite ore. In recent years, most of the slurry was pumped to the mined-out Panda and Koala pits. The Long Lake Containment Faciltiy is still the water supply for the process plant. Pumping of the slurry to the pits means that water is not being replaced in the Long Lake Containment Facility which can lead to a shortage of water for the process plant.

Burgundy has recently been approved to take water from Exeter Lake to make up for any water shortage in the process plant. The Agency understands that it is important to have water available for processing. But we are concerned that withdrawing fresh water from Exeter Lake, instead of re-using process plant water, increases the liability long term and will have to be dealt with eventually.

Wastewater Discharge

In 2023 Burgundy discharged wastewater from King Pond Settling Facility to Cujo Lake. They reported no other wastewater discharges.

Burgundy is authorized to discharge water from settling facilities to downstream lakes — as long as it meets water licence standards.
The volume of wastewater discharge has steadily decreased over the last few years.

- 16 million cubic meters in 2020
- 8 million cubic meters in 2021
- 4 million cubic meters in 2022
- 790,000 cubic meters in 2023

This suggests more wastewater is being stored. Most of the water discharged in 2022 and 2023 was the result of dewatering activities at Point Lake.

In the 2023 open water season, Burgundy twice exceeded the water volume allowed in their water license.

- At Falcon Lake, withdrew 20,000 cubic meters more than allowed.
- At King Pond Settling Facility, discharged about 320,000 cubic meters more than allowed.

Landscape near the Sable haul road.

Exceeding the water volume allowed in the water license is an indicator that Burgundy needs to improve their environmental and operational management systems. The Agency is concerned that these systems failed to adequately track and control water use.

Closure and Reclamation

As mining progresses and then ends, it is important to have a complete Closure Reclamation Plan (CRP) in place. Systematic planning for closure provides the foundation for closure and reclamation activities that are intended achieve expected closure outcomes and objectives.

Based on the current plan, operations at the Ekati mine are expected to continue to 2029. The most recent CRP was not approved due mainly to a lack of detail and progress on key items.

The Wek'èezhìı Land and Water Board set April 2026 as the deadline for Burgundy to submit a new CRP. It must include proposals for all closure criteria.

The Agency is concerned with this lack of progress. With clear direction from the Wek'èezhìı Land and Water Board, hopefully the upcoming CRP will provide a meaningful step forward towards complete closure planning.

Progressive Reclamation – Pit Flooding

In 2023, Burgundy did not do any progressive reclamation activities. But they did provide a Pigeon Pit Closure Design Plan and updated the Pigeon WRSA Design Report. These have not been reviewed and approved, but they are important parts of CRPs for these facilities.

Closure Security

To manage public liability and risk, the GNWT holds financial security equal to the total anticipated cost of closure and reclamation of the Ekati mine, at any point in time.

As of December 31, 2023, total reclamation security was about $313.3 million. This is an increase of about $20 million from last year. The increase is due to adjusting cost estimates to account for inflation.

Closure costs do not include the cost to build and maintain a winter road to the site. In a recent Wek'èezhìı Land and Water Board decision, Burgundy must submit a cost estimate and security adjustment by December 2024 that includes the cost for winter road access.

Indigenous Knowledge and Community Engagement

In 2023, Burgundy met with leadership and staff of all Indigenous governments and organizations. They presented their intention to extend the life of the Ekati mine.

Through these meetings, Burgundy received input and concerns on using indigenous knowledge in relation to managing caribou, water quality, fish and mine closure. Burgundy reports that these engagements respect Indigenous values, beliefs, knowledge, and experiences; and strengthen relationships with local Indigenous peoples.

Burgundy updated its community Engagement Plan. In reviewing this plan, the Agency recommends that discussions between Burgundy and Indigenous people should be made public. The Agency also believes that the Engagement Plan should outline how the company will manage relevant Indigenous knowledge that diverges from that of western science.

Vegetation at the mine

Recommendations

The Agency has recommendations in four areas for Burgundy and the GNWT.

Management Systems

Burgundy should ensure that up-to-date management systems and plans are in place to ensure ongoing and consistent compliance with their Water Licence and Land Use Permits and effective implementation of operational environmental requirements.

Refer to the Wastewater and Processed Kimberlite Management Chapter for more information regarding this recommendation.

Old Camp

Burgundy should undertake a study to investigate causes of water quality exceedances in Old Camp runoff. Design of the study should consider whether more frequent monitoring is needed to better understand the causes of exceedances. Burgundy should also design and implement measures to address minor landform stability issues at Old Camp, with the intent of developing a better understanding of approaches that can be used for other site closure and reclamation activities.

Refer to the Closure and Reclamation chapter for more information regarding this recommendation.

Liability of Accumulated Mine-affected Wastewater

The GNWT, in conjunction with the WLWB, should adjust the liability estimates and security bond requirements to account for closure costs associated with management of accumulated mine-affected wastewater.

Refer to Wastewater and Processed Kimberlite Management Chapter for more information regarding this recommendation.

Operational Authorizations

The GNWT should review its policies and internal practices related to the scope and scale of operational changes that inspectors can authorize under an existing Land Use Permit, including the adoption of operational thresholds that, if exceeded, would require a public review be undertaken.

Refer to the Assessment of Regulators for more information regarding this recommendation.

Vegetation growing on Cell B of the Long Lake Containment Facility

Table of Contents

Ekati Diamond Mine Site Map

1. Waste Rock Pile (Panda-Koala-Beartooth WRSA)
2. Waste Rock Pile (Fox WRSA)
3. Waste Rock Pile (Pigeon WRSA)
4. Waste Rock Pile (Sable WRSA - full extent of footprint)
5. Waste Rock Pile (Misery and Lynx WRSA
- Coarse Kimberlite rejects storage area
- Proposed Footprint

- Long Lake Containment Facility (Cells A-E)
- King Pond Settling Facility
- Two-Rock Sedimentation Pond

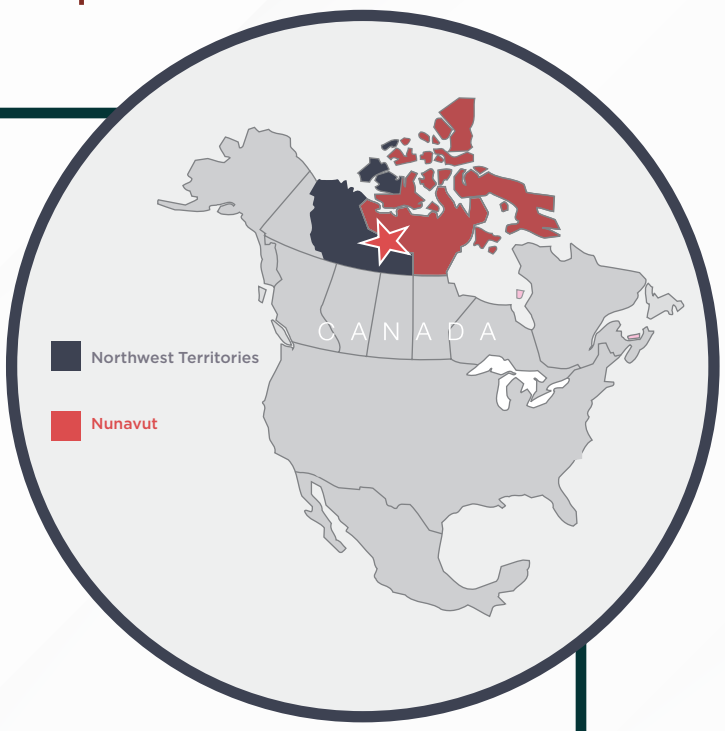
1. Pigeon Pit
2. Beartooth Pit
3. Panda Pit
4. Koala and Koala North Pit
5. Fox Pit
6. Sable Pit
7. Misery Pit
8. Lynx Pit
9. Point Lake Project (approved location)

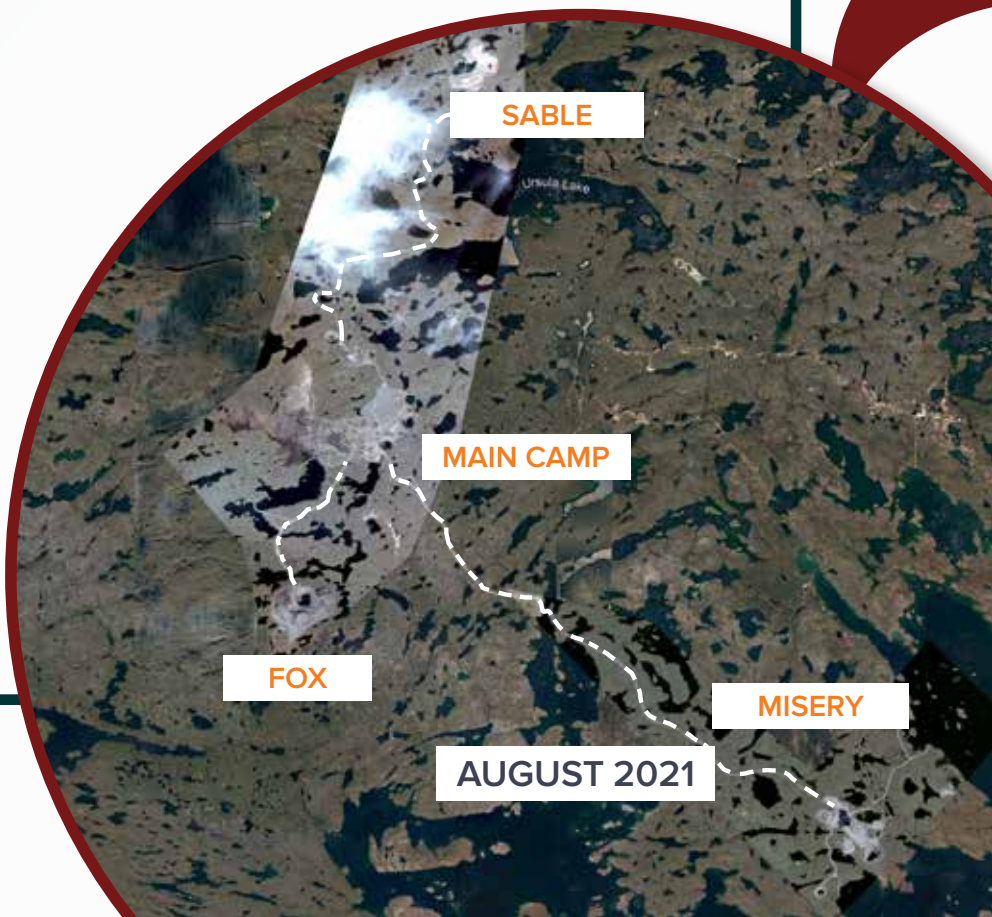
- Incinerators

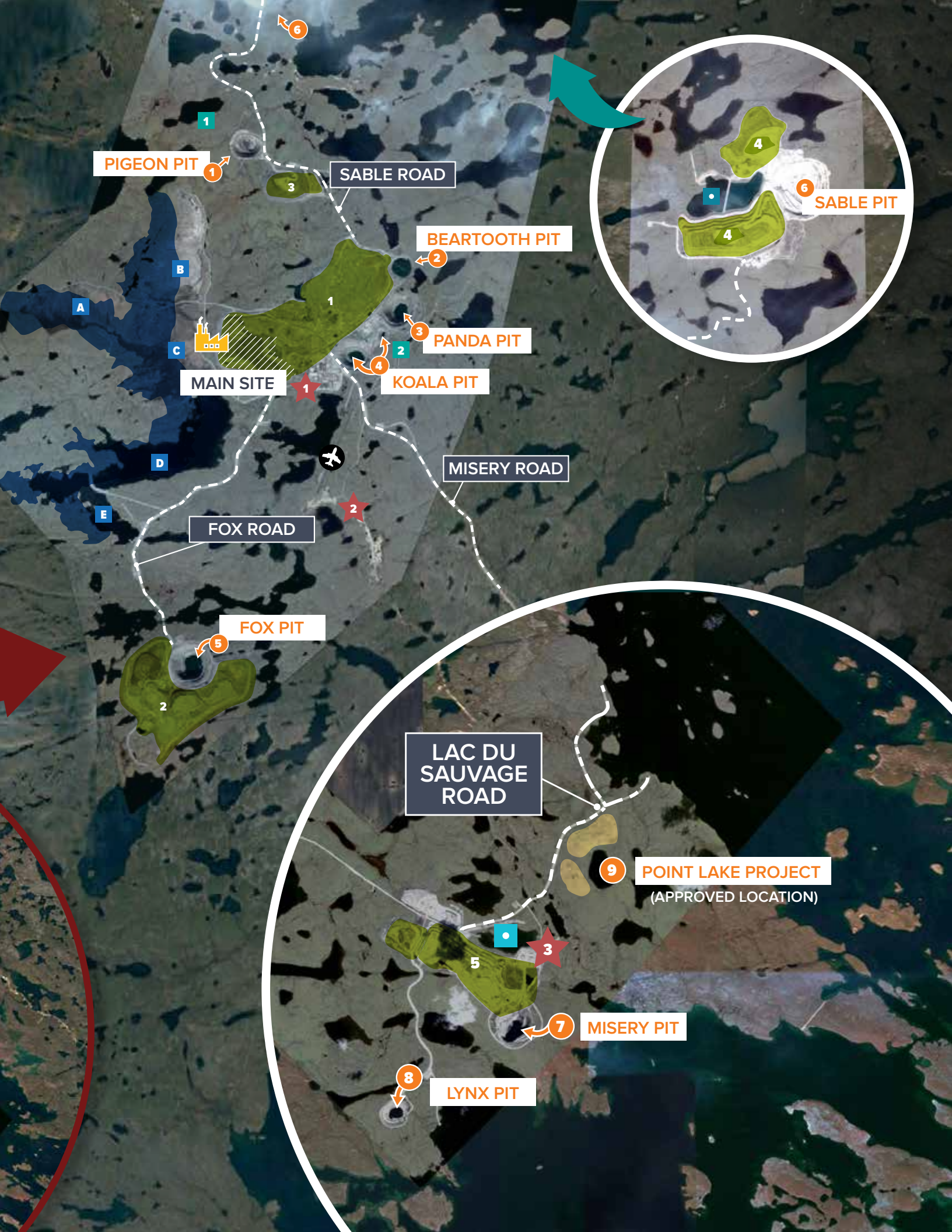
1. Pigeon Stream Diversion
2. Panda Diversion Channel

1. Main Site
2. Old Camp
3. Misery Camp

- Airstrip






PIGEON PIT
SABLE ROAD
BEARTOOTH PIT
PANDA PIT
KOALA PIT
MAIN SITE
MISERY ROAD
FOX ROAD
FOX PIT
SABLE PIT
LAC DU SAUVAGE ROAD
POINT LAKE PROJECT
(APPROVED LOCATION)
MISERY PIT
LYNX PIT
A
B
C
D
E

Land Disturbance and Road Length

The Ekati Diamond Mine has disturbed approximately 40 km^2 of land since the project first started in 1997. The following is the total estimated footprint of nearby communities in comparison to the amount of land disturbed by mining activities.

Direct habitat loss caused by the Ekati mine project since 1997

40 km^2

Total roads at Ekati 208 km

30km²
City of Yellowknife

2.4km²
Behchoko
estimated footprint

2.5km²
Kugluktuk
estimated footprint

	APPROX LAND DISTURBANCE	HOW MUCH BIGGER IS THE EKATI MINE?
Yellowknife	30 km²	x 1.3
Kugluktuk	2.5 km²	x 15
Behchokǫ̀	2.4 km²	x 16
Cambridge Bay	1.6 km²	x 24
Łutselk'e	1.3 km²	x 29
Whati	0.8 km²	x 47
Gameti	0.8 km²	x 47
Wekweètì	0.5 km²	x 76

Lynx Pit during site visit 2023.

CURRENT MINING ACTIVITIES, FUTURE MINING, AND EXPLORATION

HIGHLIGHTS

- Open pit mining of kimberlite ore at Point Lake is expected to start in 2025.
- Burgundy unexpectedly terminated its exploration drilling on the Glowworm and Lac de Gras claim blocks in October 2023 and terminated the Land Use Permits, more than a year ahead of the Permits' expiry dates.

Definitions

Kimberlite – rock typically associated with the presence of diamonds.

Exploration Drilling – initial drilling of a prospective kimberlite pipe using small diameter drilling equipment.

Current Mining Activities

Processing of kimberlite continued through 2023 with ore supplied from Sable Pit and Misery Underground.

Future Mining

Open pit mining operations are scheduled to continue at Sable until mid-2025 while underground operations at Misery will end at the end of 2026. Permitting was completed in July 2023 to allow Burgundy Diamond Mine (Burgundy) to begin removal of overburden material and construction of the Point Lake Waste Rock Storage Area once lake de-watering has been completed in summer 2024. Open pit mining of kimberlite ore at Point Lake is expected to start in 2025.

Ekati's current mine plan is based on kimberlite ore from the Sable and Point Lake pits and Misery Underground supporting a mine life to 2029. With mining expected to end at Sable and Misery Underground in 2025 and 2026, respectively, Point Lake will provide the bridge to the future of Ekati by keeping the mine operating while future mining projects are planned and developed.

Burgundy has developed a conceptual plan to extend mine life beyond 2029 by expanding several existing conventional mining projects . The plan includes the continuation of Misery Underground at greater depth, evaluating alternatives for optimizing the Point Lake pit, and developing Sable Underground following pit completion in 2026, Fox Underground below the existing pit and the Fox stockpile of low grade kimberlite. The future of Underwater Remote Mining (URM) at Ekati is unclear, although the Lynx URM trial remains scheduled for 2025.

Exploration

No exploration drilling was conducted on the Ekati claim block in 2023.

As reported in previous Annual Reports, Burgundy's predecessor (Arctic Canadian Diamond Company) conducted widespread exploration drilling dating back to 2012 on the Glowworm and Lac de Gras claim blocks located east and south of the existing mine site. Burgundy unexpectedly ended further exploration on these remote claim blocks in October 2023 and terminated the Land Use Permits, more than a year ahead of the February 2025 Permit expiry dates.

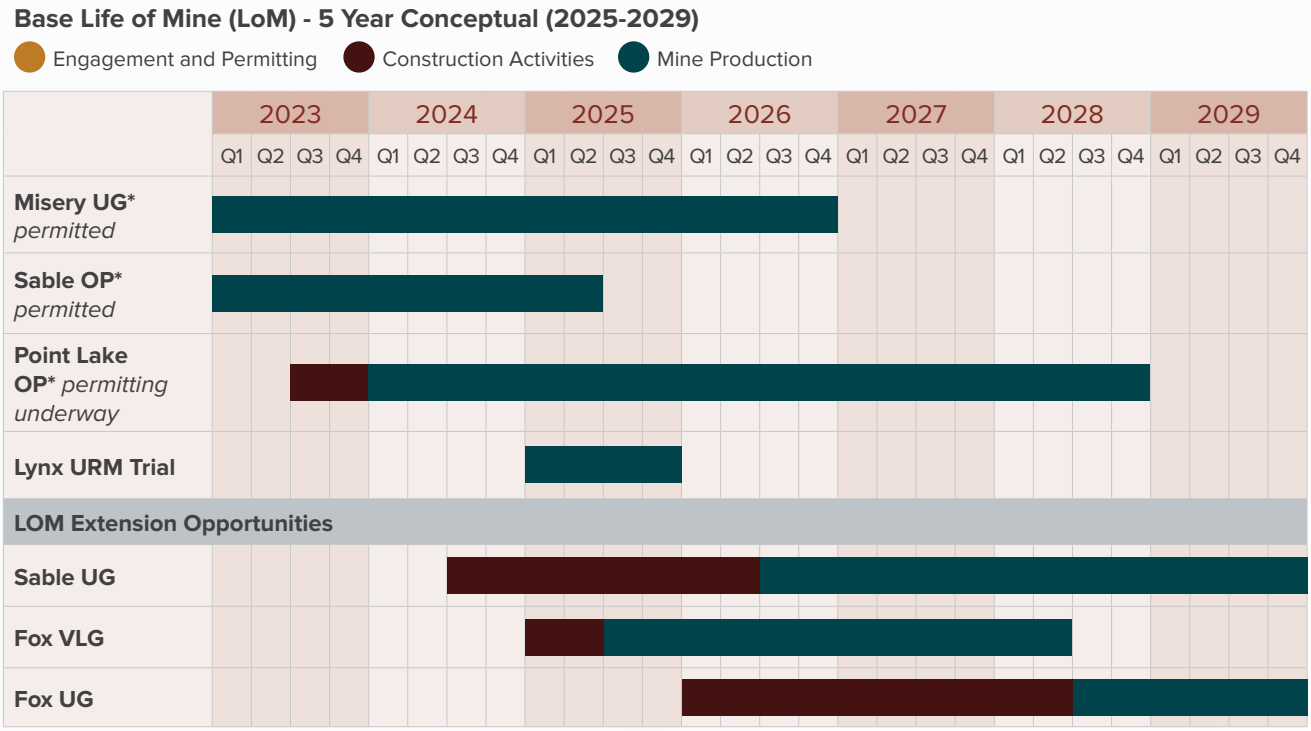


Figure 1 - Ekati Life of Mine Plan (2025-29) from Burgundy presentation to Nov 2023 Agency AGM.

Timber Wolf - courtesy of Ekati Diamond Mine.

WILDLIFE EFFECTS

HIGHLIGHTS

- Wildlife monitoring indicated higher numbers of incidental caribou observations and lower numbers of incidental wolverine observations, and steadily increasing numbers of incidents involving grizzly bears.
- Traffic data on major haul roads were collected using remote cameras for most of 2023.
- Preliminary results of Burgundy's caribou collar movement study were released, a welcome first step evaluating the effectiveness of the Caribou Road Management Plan.

Definitions

Adaptive Management: a management system with continual monitoring. If a mitigating action does not work, additional actions are used to keep the impacts within accepted levels or below thresholds.

Incidental Observations: records of observations (also termed sightings) of any wildlife by any person and in all areas at the mine.

Mitigation, Mitigating: an action that is intended to reduce the negative impacts of a condition or situation. To make something less harmful; to make sure environmental impacts from the mine are as minimal as possible.

Monitoring: collecting and analyzing repeated observations and measurements to characterize conditions and to evaluate change and impacts of change. Watching habitat and wildlife, and 'keeping an eye' on things all the time.

Systematic Surveys: surveys of wildlife species conducted by the Ekati Environment Department using specific methods and covering an established area, such as all main roads.

Wildlife Incident: an interaction between wildlife and human(s) that may compromise the safety of the wildlife and/or human(s).

Red Fox - courtesy of Ekati Diamond Mine.

Grizzly bear 15 km Misery Road site visit 2024

Activities 2023

The Burgundy Diamond Mine's (Burgundy) Wildlife Effects Monitoring Program (WEMP) documents wildlife presence and wildlife management responses at the Ekati mine. The 2023 WEMP is the 26th annual program and report. This annual report focused on caribou, grizzly bears, wolves, wolverines, foxes, raptors (falcons, hawks and ravens [considered functional raptors]), breeding birds, and wildlife habitat.

The WEMP provided detailed reporting on direct habitat use, incidental observations, wildlife survey monitoring programs, waste management, and wildlife incidents and management actions. Structured activities included systematic haul road and Long Lake Containment Facility (LLCF) surveys, behavioural monitoring and camera surveys along infrastructure and adjacent areas. Many of the activities are required for management of caribou under the Caribou Road Management Plan (CRMP).

The data and observations within the report were reported clearly, and the figures and tables – especially the trends over time – were generally well presented. The management of waste that may attract wildlife (general garbage and kitchen waste) is an ongoing challenge at the mine, and Burgundy has done a good job as a result of its continued education and waste management awareness. However, as we have repeatedly stated in the past, there is still no integration of datasets from incidental observations, haul road survey data, LLCF monitoring surveys, or caribou collar data. Integration of datasets would lead to a more comprehensive picture of caribou movement and distribution at the mine site and possibly make monitoring more efficient. There is also no formal assessment within the WEMP of the effectiveness of the CRMP (see below). The pages of seasonal regional caribou collar

Caribou courtesy of courtesy of Ekati Diamond Mine

distribution maps in the WEMP report contribute little if anything to monitoring or evaluation of management practices; more useful would be focussing on annual, finer-scale examination of collar distribution and movements around the mine footprint.

The Ekati Mine Footprint

The Ekati mine footprint currently covers 39.5 km^2 of Arctic tundra, with minimal increases in size in recent years. As of 2022, 208 km of roads have been constructed.

Wildlife Observations and Incidents

Wildlife observations are summarized in several ways, primarily through incidental observations, systematic monitoring programs (haul roads, LLCF), wildlife incidents and management actions. Numbers and details are scattered throughout the WEMP, with no integration of data and no obvious significant changes from previous years, except for a higher number of incidental caribou observations and lower numbers of incidental wolverine observations compared to previous years, and steadily increasing numbers of incidents and management directed at grizzly bears and involving some form of deterrent (Figure 2). One-third of the total grizzly bear incidents involved the same ear-tagged (and hence captured and handled previously) grizzly bear. Most incidental observations involved caribou, with the majority during fall in 2023. Observations of moose have become more common in recent years at the Ekati mine, with none observed prior to 2013, 1–2 sightings in 2013 and 2014, and an average of 11 incidental moose observations recorded annually from 2015 to 2023.

Caribou Road Mitigation Plan

Objectives of the CRMP include "avoid and reduce potential barrier effects of [roads] to caribou movement and migration; and limit the effect of sensory disturbance from roads and traffic on caribou behaviour". The CRMP is designed to use locations and movements of collared caribou and observations of caribou near mine infrastructure as Action Level triggers to initiate intensified levels of monitoring and mitigation. The Agency has noted previously that it is unclear how often and when collars and observations have been used as triggers. There are still no details in the 2023 WEMP on the specifics on how the weekly maps of locations of collared caribou were used to "inform the required local monitoring and/or change in the mitigation levels defined by the CRMP". As an example, the WEMP indicates that the Red alert level (Level 3 – high risk) was in place for 284 days, or 78%, of the year based on "increased observations of caribou on site" and "collar data and observations". Red alert level is triggered by "0.25% of total cows in Bathurst herd within 200 m of roads, ≥ 1 caribou group sighting within 500 m of roads during northern migration (May) and/or ≥ 1 caribou crossing road", and results in changes in alert level on signage, and the options of speed reductions (continued from Orange alert) and short-term or long-term road closures. The weekly caribou maps indicated collared individuals were not always within 14 km of the mine (one of the Orange levels triggers), thus the triggers for alert levels were apparently driven by caribou near the roads. Better presentation

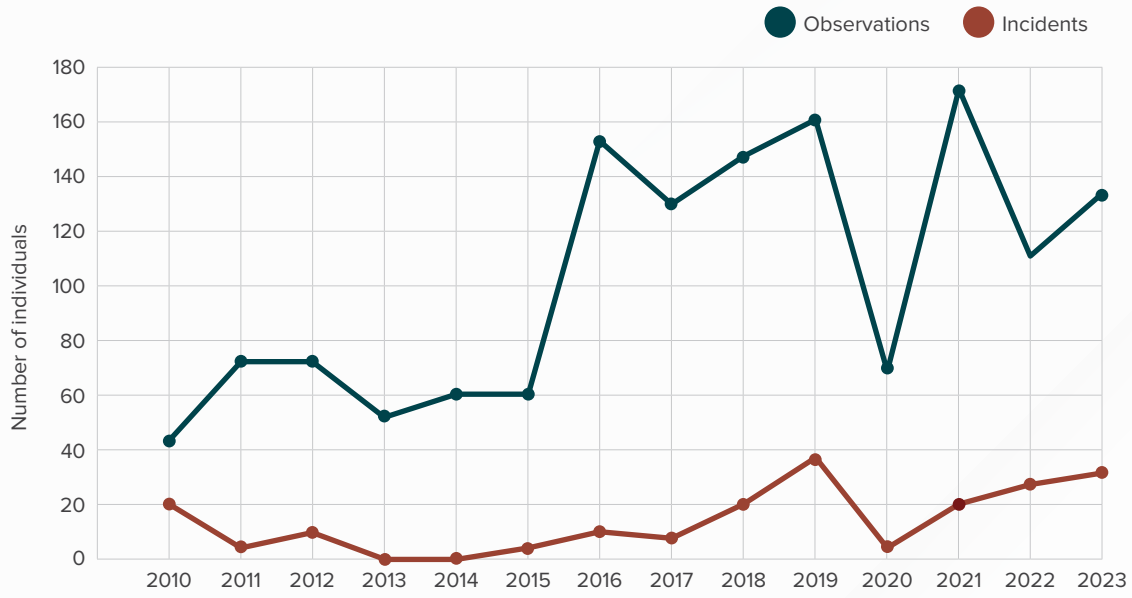


Figure 2: Trends in the number of grizzly bear incidental observations and incidents at the Ekati mine, 2010 to 2023. Note the drop in numbers during 2020 likely reflected fewer personnel on site due to the Covid-19 and restructuring-related shutdown.

of the trigger(s) to changes in or maintenance of alert levels would be useful for assessing monitoring effectiveness. As it is, it is not possible to evaluate the effectiveness of monitoring methods used to trigger enhanced mitigation and of applied mitigation, limiting the ability to evaluate adaptive management.

During 2023, caribou presence within 100 m of roads triggered a short-term 1.5-hour closure of an unknown road, as well as a total of 43 hours of traffic delays spread over 401 events when wildlife (mostly caribou) was less than 100 m from roads, primarily along the Sable Haul Road (63%) and Misery Haul Road (29%). No details on the distance, numbers and composition of incidentally or systematically observed caribou groups were provided, making it impossible to evaluate how caribou distribution related to these traffic delays, or which monitoring method proved most effective. Although the CRMP concludes with "Documenting the mitigation and monitoring efforts related to CRMP will continue in future years and provide information for adaptive management, as required", it is challenging to review the limited information feeding into adaptive management.

The Agency continues to be concerned that there is no evaluation to determine the potential semi-permeable barrier effect of roads from sensory disturbance to caribou movement, primarily visual, auditory and olfactory disturbance from vehicles and human activity. The telemetry study currently being conducted by Burgundy is a much delayed but welcome first step to examine the effectiveness of the CRMP [Highlight 1], but there appears to be nothing internal to the WEMP that addresses the stated objectives of the program. In their July 31 2023 response to Agency comments on the 2022 WEMP, Burgundy stated "evaluation of the CRMP will be conducted after the comprehensive telemetry analysis has been completed as this will inform updates to the current CRMP".

The Agency continues to question why collared caribou males are not included in WEMP analysis and reporting. Burgundy has stated that since males "were not historically included in monitoring of the Bathurst herd, and as they use different ranges than females at some periods within the year, data from male caribou were not included in the analyses for this report". Given the number of males collared since 2015, the fact that a caribou is a caribou regardless of its sex from a disturbance, monitoring and mitigation stand-point, and that male caribou were included in behavioural surveys and the mine telemetry analysis, we continue to believe there is no ecological reason not to incorporate data from male caribou collars into the program. In its response to comments on the 2022 WEMP, Burgundy stated "...Arctic Canadian will include male collar data in the analyses going forward". Unfortunately, collared male caribou were still not addressed in the 2023 WEMP analysis, a disappointing result given the recent commitment.

Traffic Monitoring

Since the sensory disturbance from vehicles on roads is likely one of the main semi-permeable barrier effects to caribou passage through mine infrastructure, the Agency has repeatedly called for traffic monitoring to correlate with analysis of caribou monitoring and mitigation. After a pilot

study in 2022, dedicated remote cameras were deployed on the Misery and Sable roads during 2023. Although only effective for 68–72% of the year (primarily due to battery and camera mount failure, and snow cover), the data indicated average daily peak vehicle passages on the Misery Road of 82 passages per day (one vehicle passage every 17.5 minutes if spread evenly throughout a 24-hour period) and about 165 vehicles per day on the Sable Road (a vehicle passage every 8.7 minutes). Limited traffic data were presented in the WEMP. The Agency is encouraged that traffic data are finally being collected, and hope that the large gaps in data collection can be resolved.

HIGHLIGHT 1

Burgundy Caribou Telemetry Analysis and Report

In part due to a 2021 analysis conducted by the Agency and at the insistence of the Department of Environment and Climate Change, Burgundy committed in 2022 to use caribou collar data to examine the potential effects of the Ekati Diamond Mine on caribou behaviour. Specifically, the analysis was to examine if caribou changed their distribution and movements as they got closer to the mine. Meetings with community and science experts reviewers were held in 2022 to discuss the approach and methods, and in February 2024 Burgundy released a draft of their report for review and discussion. The methods used were complex and the authors of the report invested a significant amount of effort into the analysis. However, the Agency and other reviewers have voiced a number of concerns with the presented approach, methodology, and statistical analysis, and hence the resultant conclusions. Further discussions among the company and reviewers will take place in 2025.

HIGHLIGHT 2

Wildlife Management and Monitoring Plan

The process to update the Wildlife Management and Monitoring Plan (WMMP; formerly the Wildlife Effects Monitoring Plan) began in June 2022 when the Government of the Northwest Territories informed the mine that they expected that a revised Tier 3 WMMP would be provided with the pending water licence renewal application. A draft plan was submitted in November 2022, followed by a workshop, initial comments, and responses from Burgundy by April 2023. The process to update the WMMP now appears to have stalled however, and the Agency looks forward to further progress on this important document.

Ulu Lake from Sable crusher pad.

AQUATICS EFFECTS

Definitions

Action Level: when the concentration of a substance exceeds a level defined in the Aquatic Response Framework, where the company must take action in order to reduce or remove the potential for harm.

Benchmark: a standard against which to compare or assess a monitored parameter.

Benthic Macroinvertebrate: all life forms without bones living on lake and stream bottoms (i.e. clams, snails, crustaceans, insect larvae and worms).

Discharge: to allow wastewater to flow out or be pumped out from where it was held.

Hexavalent and Trivalent Chromium: different oxidation states of the naturally occurring element chromium, the hexavalent being rarer in nature than trivalent.

Oxidize: a naturally occurring process where a substance reacts with oxygen.

Phytoplankton: microscopic plants (e.g., algae) found in aquatic environments. They are an important food source for zooplankton.

Zooplankton: small, mostly microscopic animals that live suspended in waterbodies. Zooplankton feed on phytoplankton and are an important food source for fish.

HIGHLIGHTS

- Chromium concentrations under-ice in Cujo Lake spiked to levels significantly above any previous year.
- Potassium and chloride continue to exceed Action Levels in Leslie Lake.
- Selenium exceeded alert levels in Moose Lake sediment for the 2nd consecutive year.

Culvert under Sable road, 2024.

Background

Each year monitoring programs are conducted at Ekati mine to determine if changes in the downstream aquatic environment are occurring as a result of mining activities.

There are four watersheds affected by mining operations: Koala, King-Cujo, Pigeon-Fay-Upper Exeter and Horseshoe (Appendix A). Lakes and streams in these watersheds, as well as unaffected sites upstream and in different watersheds, are sampled each year under the Aquatic Effects Monitoring Program (AEMP) as required in Burgundy Diamond Mine's (Burgundy) Water License. Using information collected through the AEMP, changes and trends in water and sediment quality, benthic macroinvertebrate communities, phytoplankton and zooplankton, as well as fish populations and fish health, can be identified.

Wastewater Discharged to the Aquatic Environment

There was no wastewater discharged from the Long Lake Containment Facility (LLCF) to Leslie Lake or from the Two Rock Sedimentation Pond into Horseshoe Lake in 2023. A reported volume of 790,000 m^3 of wastewater was discharged from the King Pond Settling Facility (KPSF) to Cujo Lake in June, July and August.

The de-watering of Point Lake, work that is necessary before the removal of overburden and mining of kimberlite can begin, is expected to be completed in 2024. Monitoring of lakes downstream from the Point Lake Project as part of the AEMP will begin after the lake has been drained of water.

Water Quality

Overall, the AEMP continues to be an effective program for monitoring changes in the aquatic environment of lakes and streams downstream of the Ekati mine. Similarly, the Response Plans for various water quality variables and biotic metrics within the Aquatic Response Framework (ARF) show improvements with each new iteration. Together, the AEMP and ARF have been effective in alerting Burgundy and regulators of possible deterioration in water quality and changes to biological communities downstream of the mine site. Additional detail is provided in the sections below.

Aquatic Effects Monitoring Program

2023 was the 26th consecutive year of aquatic effects monitoring in the Koala watershed, the 22nd year in the King-Cujo watershed and the 5th year in the Horseshoe watershed. 2023 was the 13th year of monitoring the Fay Bay-Exeter watershed after the 2008 accidental flow of processed kimberlite into Fay Bay from the nearby north end of the LLCF.

Water Quality

Long-term monitoring through the AEMP shows that concentrations of major ions, nutrients and metals in lakes and streams downstream of the LLCF and KPSF in Koala and King-Cujo watersheds, although elevated above pre-mining levels downstream as far as Lac de Gras and Lac du Sauvage, have generally stabilized in the past few years, with a few exceptions mentioned below.

Water pH was low (slightly more acidic than usual) for the 3rd consecutive year in most AEMP lakes as well as at reference sites

Large diameter insulated pipe for moving water and processed kimberlite on site, photo taken during site visit 2024.

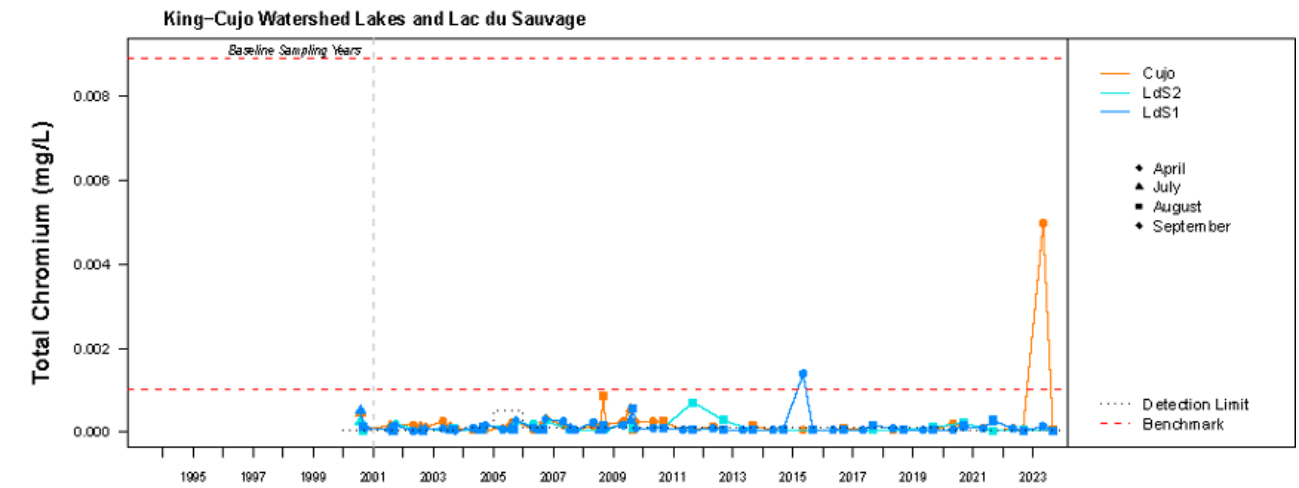


Figure 3: Chromium levels in Cujo Lake (from: 2023 AEMP report Appdx C Historic Lake Water Quality).

not impacted by mining activities. Initially, Burgundy suspected this trend was the result of changing water analysis laboratories in 2020. A comparison of pH measurements between the two laboratories was completed and revealed no statistically significant differences in the testing results. The cause of this lowering pH trend remains uncertain.

Chromium (Cr) concentrations in water under-ice in Cujo Lake increased in 2023 to levels significantly above any previous year (see Fig. 3). The analysis shows Total Cr levels were 5 times greater than the benchmark concentration for Hexavalent Chromium [Cr(VI)], with the greatest concentrations measured in near-bottom depths (mean 0.009 mg/L at 4 m). It is unclear whether the source of this elevated chromium is wastewater discharged from the KPSF or mobilization from the existing sediments into the water above. There is no corresponding increase of chromium in the lake sediments.

Hexavalent chromium (CrVI) is highly toxic to fish and aquatic invertebrates, easily passing into an organism's cells. Trivalent chromium (CrIII) is somewhat less toxic than CrVI because it can be less soluble and less bioavailable but CrIII also has significant toxicity at the cellular and biochemical levels. Burgundy does not report what proportion of the Total Cr measured in Cujo Lake is Cr(VI).

Water quality changes in Ulu Lake

Ulu Lake and its outflow stream, which are both upstream of Horseshoe Lake and not influenced by wastewater discharged from the Two Rock Sedimentation Pond, have had increases above pre-development levels in concentrations of sulphate, nitrate, potassium, barium, nickel and strontium, as well as water hardness, in the past four years. According to Burgundy, the likely cause of these increases is Ulu Lake's proximity to dust-generating Sable pit infrastructure such as the waste rock piles and access roads.

Cell D of the Long Lake Containment Facility.

Sediment Quality

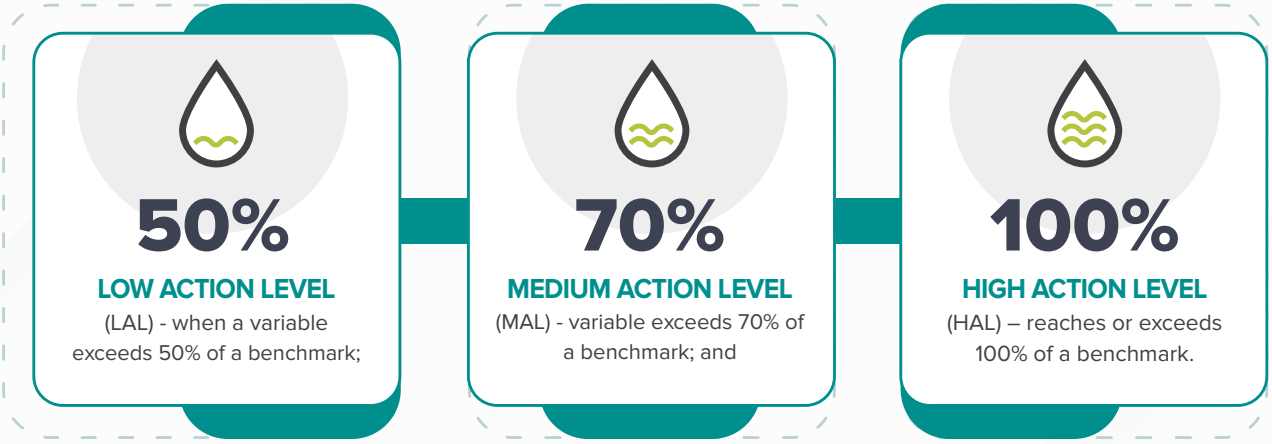
Selenium concentrations in Moose Lake sediments in 2023 downstream from the LLCF exceeded the BC and US Environmental Protection Agency alert concentration for the second consecutive monitoring year. Selenium in sediments in Leslie Lake, located upstream from Moose, did not exceed this alert concentration in 2023 but did in the three previous monitoring years. Burgundy has recently acknowledged that there is a potential for accumulation of selenium in the tissues of fish in Leslie and Moose lakes. Excessive selenium concentrations in fish can lead to reproductive impairment. The Agency will be interested to see if fish collected from Leslie and Moose Lakes in 2024 during the AEMP fish-monitoring have high body burdens of selenium.

Several metals (barium, cadmium, cobalt, manganese, nickel and selenium) in sediments increased to their highest levels in the bay in Lac de Gras that receives water from the Koala watershed. Cadmium was particularly significant as it exceeded CCME guidelines for the second consecutive sediment monitoring year.

Aquatic Response Framework

The Aquatic Response Framework (ARF) is an adaptive management tool that helps to ensure the protection of waterbodies downstream of the Ekati mine for use by people, wildlife and fish. Within the ARF, water quality and biological communities (plankton, benthos and fish) are assessed against specific action levels (concentrations of water quality variables and metrics of biota). Any exceedance of an action level requires development of a corresponding Response Plan that describes adaptive management actions to be taken before disturbances reach levels

THERE ARE THREE TIERS OF ACTION LEVELS, EACH WITH ASSOCIATED TRIGGERS, FOR WATER QUALITY VARIABLES OTHER THAN DISSOLVED OXYGEN:



that can cause harm to aquatic life and other water users. There are three tiers of Action Levels described in the ARF, each with associated response triggers for changes in water quality other than dissolved oxygen and biological communities.

Action Level Exceedances for Water Quality

The Agency continues to be concerned about potassium and chloride levels under ice in Leslie Lake immediately downstream of the LLCF. Concentrations of potassium under-ice in Leslie Lake exceeded the LAL or MAL for the 6th consecutive year in 2023 and, in open water, exceeded the LAL. Chloride also exceeded the under-ice LAL in Leslie Lake, marking the 7th consecutive year of exceedances.

Action Level Exceedances for Plankton

There were fewer Action Level exceedances for phytoplankton community metrics (chlorophyl *a* and overall density) in the King – Cujo watershed in 2023 than in the previous year, suggesting this community may be rebounding to baseline condition. Low Action Levels were exceeded for phytoplankton community composition in Leslie Lake and zooplankton community composition in Leslie, Moose and Cujo lakes.

Point Lake during the dewatering phase, 2023.

Response Plans

Two Response Plans (RP) were revised and approved in 2023-24.

The Nitrogen RP Version 3.1 was approved by the Wek'heezìi Land and Water Board (WLWB) in July 2023. Resulting from under-ice exceedances of Action Levels for nitrate and nitrite in Horseshoe Lake in 2022 (exceedances not repeated in 2023), the updated RP included a commitment to report on the results of additional monitoring for nitrogen in the 2023 AEMP report. This report confirms an increasing concentration of nitrate in Horseshoe Lake through the December – April 2023 under-ice season and an observed decrease in total ammonia. This is consistent with expected patterns of nitrification whereby ammonia is oxidized to nitrite, and nitrite is oxidized to nitrate.

The Plankton and Benthos Community Composition RP Version 3.2 was updated to revise the wording of the MAL and HAL conditions, clarify the recovery times after nutrient enrichment and better address the role of total phytoplankton density within the ARF. The updated RP was approved by the WLWB in January 2024.

Water Licence Compliance

Four exceedances of Water License limits occurred in summer 2023. Two of these involved water volume exceedances and are detailed in the Wastewater and Processed Kimberlite Management chapter of this report. The other two involved the discharge of water that did not meet Effluent Quality Criteria (EQC). On June 27, 2023, levels of Total Suspended Solid (TSS) exceeded the EQC. On August 22, 2023, while discharging from King Pond Settling Facility to Cujo Lake a water sample was collected that measured TSS at 570 mg/L (EQC is 25 mg/L) and copper was measured at 0.023 mg/L (EQC is .007 mg/L). It was noted that heavy machinery was working in the area and was the cause of the exceedances.

AIR QUALITY

HIGHLIGHTS

- Ambient air quality generally remains good at the Ekati mine except for the significantly high summertime dustfall levels found within 90 m of the Misery and Sable haul roads.
- Changes in snow chemistry and lichen tissue as far as 10 km from mine infrastructure can be attributed to mining activities.

WRSA at the Ekati mine site.

Definitions

Ambient Air Quality: the concentration of particulates in the surrounding air.

Concentration: the amount of a substance in the defined space; the amount of different pollutants in the surrounding air.

Data Recovery Rate: the number of samples collected compared to the number of samples that could have been collected. The rate is expressed as a percentage.

Dust Suppressant: products that prevent or reduce the amount of dust spreading into the air.

Greenhouse Gases: gases in the atmosphere that trap heat. They allow sunlight to pass through and warm the earth but prevent the warmth from leaving. Most common greenhouse gases are water vapour, carbon dioxide, methane, ozone, nitrous oxide and chlorofluorocarbons.

Meteorology: the science of weather and climate; the conditions of the atmosphere in an area.

Monitoring: collecting and analyzing repeated observations and measurements to evaluate change and impacts of change. Watching and 'keeping an eye' on things all the time.

Particulates/Particulate Matter: very tiny pieces of dust, smoke, and other materials in the air. Some are big enough to see with your eyes; others are so small you need a microscope. Particulate matter is a mix of airborn particles in solid or liquid form.

Directors walk along esker during site visit.

Air Quality Monitoring at the Ekati Mine

The Air Quality Monitoring Program (AQMP) was started in 1998 as a commitment made in the 1995 Environmental Impact Statement and is comprised of:

- meteorological monitoring;
- greenhouse gas (GHG) emission calculations;
- ambient air quality monitoring of airborne particulate, sulphur dioxide (SO_2), nitrogen dioxide (NO_2), nitric oxide (NO), and oxides of nitrogen (NO_x);
- dustfall monitoring; and
- snow chemistry and lichen tissue monitoring.
- Meteorological monitoring

Meteorological Monitoring

Meteorological monitoring takes place at two stations: the Koala station near the airport where wind speed and direction, air temperature, humidity, precipitation and snow depth are monitored year-round; and the Panda Lake station that is operated during the summer to provide data for estimating open-water evaporation.

The annual average temperature at the Koala meteorological station in 2023 was -5.9°C. while the historical average was -8.8°C. This suggests that 2023 was the third warmest year on record at Ekati mine when compared to the 1995 to 2023 historical averages.

The total precipitation (a combination of snowfall and rainfall) recorded in 2023 was 196 mm, which is 120 mm lower than the 1994 to 2023 average of 316 mm. Overall, 2023 was the third driest year at Ekati mine since precipitation levels began to be monitored.

Greenhouse Gas Emissions

Diesel fuel used in mine vehicles, to heat buildings and to generate electricity are the major sources of GHG emissions with smaller sources being the combustion of jet fuel, open pit blasting, solid

Morning fog at Pigeon Pit during site visit 2024.

waste incineration, composting and sewage treatment. GHG emissions in 2023 are calculated to be 169.8 ktCO2e (kilotonnes of carbon dioxide equivalent). This increase of 3% over 2022 emissions is attributed to more kimberlite being hauled from the Sable open pit to the central processing plant.

Ambient Air Quality Monitoring

Total Suspended Particulate (TSP) levels are monitored at the Grizzly Lake station while TSP, fine particulate ($PM_{2.5}$), SO_2, NO_2, NO and NO_X levels are monitored at the Continuous Air Monitoring Building (CAMB) located near the main camp. Air quality monitoring results are compared to standards and guidelines established by the Government of the Northwest Territories (GNWT) and Canadian Council of Ministers of the Environment (CCME).

There were nine exceedances of the 24-hour standard for TSP between July and September in 2023 while $PM_{2.5}$ levels exceeded the 24-hour standard on five occasions. The levels and frequency of these exceedances were greater than in 2022. Burgundy attributes this to particulate and smoke from regional wildfires. The Agency suggests that fugitive dust from the Long Lake Containment Facility (LLCF), roads and airport runway also likely contributed to the high TSP and $PM_{2.5}$ levels.

The hourly, daily and annual concentrations of SO_2 and NO_2 measured at the CAMB station were well below the applicable standards in 2023. There are no applicable standards for NO and NO_X. It is noted that while the 2023 data recovery rate for SO_2 was 93%, the recovery rate for NO_2, NO and NO_X was only 15%. According to the CCME data quality objectives, a 75% data recovery rate is required to ensure confidence in any decisions made with the resulting data.

Large composter in waste mangement facility during site visit.

Dustfall Monitoring

Dustfall sampling was conducted at 27 monitoring stations located near haul roads, the LLCF and the airport in 2023. Stations were established along the haul roads on transects that cross perpendicular to the road length at distances 30 m predominantly upwind and 30, 90, 300 and 1,000 m downwind of the road to measure fugitive dustfall levels at varying distances.

In 2023, the seasonal dustfall levels at 300 m from the Misery, Lynx and Sable haul roads, the distance at which the GNWT interim dustfall objective of 1.53 mg/dm^3/day is measured, were below the objective. However, as noted in previous years, levels monitored 30 m and 90 m from the Misery and Sable roads continue to be significantly higher than those measured at the 300 m stations, often exceeding the dustfall objective. These dustfall levels, although not directly comparable to the GNWT interim objective because of their shorter distance from the road, demonstrate the need for effective dust suppression on haul roads, particularly during exceedingly dry years as was experienced in 2023. It is also important to note that dustfall levels measured adjacent to roads, LLCF and the airport in 2023 were generally lower than levels measured in 2022. The Agency attributes this to Burgundy's renewed effort on fugitive dust suppression (see below).

Burgundy reported that the commercial dust suppressant EnviroKleen was applied to 20 km of the Sable haul road and 7 km of the Misery haul road as well as areas around the main camp in 2023, while the suppressant EK35 was applied to the airport runway. Water was used to supplement road dust suppression at other locations. Given the continued high dustfall levels measured at stations within 90 m of haul

roads, Burgundy is encouraged to continue the use of EnviroKleen along the entire length of the Sable road and expand its use along the entire length of the Misery road.

Snow Chemistry and Lichen Tissue Monitoring

Snow chemistry and lichen monitoring takes place every three years to measure the regional effects dust, metals and gaseous emissions (e.g., ammonia, nitrate and sulphate) are having on the surrounding natural environment.

A total of 32 snow samples were collected in 2023. The results suggest that winter loading of particulates (e.g., fugitive dust from roads and blasting) and a number of metals are elevated nearest the mine, with a sharp decline to background levels within 10 km. Parameters associated with gaseous emissions do not show similar trends, suggesting that long-range transport from distant sources has a greater influence on their wintertime loading levels than does nearby mining activities. Lichen tissue sampling in 2023 confirmed the relationship between environmental loading levels and distance: concentrations of mine-related elements in lichen tissue decreased sharply between 5 to 10 km distance from mine infrastructure with a shallower decline further away. This suggests the mine's zone of Influence on snow chemistry and lichen tissue from air emissions is approximately 10 km.

Dust monitoring stations along Sable Road during site visit.

Solid Waste Incinerator Air Emissions Testing

The Incinerator Management Plan requires Burgundy to complete air emissions stack testing once every three years of the two solid waste incinerators operating at the Ekati mine. The latest testing was scheduled for 2023, but in August Burgundy informed Wek'èezhìı Land and Water Board (WLWB) that emissions testing was delayed until 2024 due to the lack of available transportation and logistical support caused by wide-spread wildfires in the Northwest Territories. The WLWB supported this scheduling change and incinerator stack testing is now expected to occur during the summer of 2024.

Ambient Air Quality Planning

The Air Management and Monitoring Plan (AQMMP) was initiated in 1998. It was then

updated in 2009 represents the latest version of the management plan, although some components of the withdrawn air quality plan for the Jay Project have been carried over.

A new Ambient Air Quality Monitoring Guideline (the Guideline) was adopted by the GNWT in April 2023 and establishes best practices and minimum air quality monitoring requirements for diamond mines operating in the NWT.

As part of its 2023 air quality reporting, Burgundy suggested several changes to their program including a reduction of fugitive dustfall, snow and lichen monitoring stations.
In March 2024, the GNWT Department of Environment and Climate Change directed Burgundy to update the AQMMP to ensure it is consistent with the new Guideline and to engage regulators, Indigenous governments and organizations and the Agency before any changes are implemented. The Agency considers this review of the AQMMP and public engagement as being positive steps and notes this is consistent with a recommendation made in our 2022-23 Annual Report.

Incineration and composter building taken during site visit 2024.

WASTE ROCK MANAGEMENT

Definitions

Acid Neutralizing Potential: the ability of rock waste to buffer against changes in acidity.

Acid [rock] Drainage: outflow of water that has become acidic due to contact with exposed rock surfaces in waste rock piles, pits and underground workings.

Daylight/Daylighting: the emergence of seepage from a waste rock storage area to the surface of the adjacent ground.

Kinetic Geochemical Testing: a category of laboratory testing where measurements designed to predict the likelihood of acid drainage from rocks are made over a long period of time (e.g., one year).

Metasediment: a type of metamorphic rock; rock transformed by heat, pressure, other natural actions.

Neutralize: to make something ineffective or harmless. In this case, to make an acidic or alkaline substance chemically neutral.

Overburden: rock or soil or lake bottom mud covering a mineral or diamond deposit.

Seepage: the slow escape of liquid through a porous material or small holes. In this case, liquids escaping from waste rock piles that may contain contaminants.

Seeps of Potential Concern: seeps where the concentration of a contaminant exceeds the regulated maximum concentration or where the 95th percentile value of the WRSAs historical dataset is exceeded more than once during a two-year sampling period.

Static Geochemical Testing: a category of laboratory testing where measurements designed to predict the likelihood of acid drainage from rocks are made over a short period of time (e.g., one day).

Unauthorized Release: A release of any water or waste to the environment that is not authorized under the Water Licence or Land Use Permit.

HIGHLIGHTS

- Waste rock was principally removed from the Sable pit and minor quantities from Misery Underground in 2023 with more than 17.6 million wet metric tonnes of waste being deposited at two waste rock storage areas and the Course Kimberlite Reject Storage Area.
- The design of the Point Lake Waste Rock Storage Area has been approved allowing construction of the waste rock and overburden stockpiles to proceed.
- The principles around a new ecologically-based approach to seepage management have been approved.

Misery Road with Lynx crusher pad on the left and Lynx/Misery Waste Rock piles on right taken during site visit 2023.

Waste Rock Storage Areas

Large quantities of overburden material and adjacent rock must be removed to access the deeper kimberlite ore. This waste material is transported from the pits and underground by truck and deposited in large areas known as Waste Rock Storage Areas (WRSA). These storage areas require careful planning and management as they are permanent landscape structures that will remain in place following closure of the mine site.

There are currently five WRSAs at the Ekati mine. Four have reached their final closure footprints and heights - Panda/Koala/Beartooth, Fox, Lynx and Pigeon. The Sable pit remains active and waste rock is continually being added to the adjacent WRSA. Minor quantities of waste rock is being added to the Misery pile from the adjacent underground operations. Another large pile of waste rock, known as the Coarse Kimberlite Reject Storage Area (CKRSA), is located within the Panda/Koala/Beartooth WRSA but is managed separately. Construction of a new WRSA and overburden pile adjacent to the Point Lake pit is anticipated to begin in 2024 when de-watering of the lake has been completed. A description of each storage area is provided in Table 2.

Waste Rock Management

Waste rock was principally produced at the Sable pit and minor quantities from Misery Underground in 2023. A total of 17.6 million wet metric tonnes (wmt) of waste rock and coarse kimberlite was deposited at three locations in 2023 (Table 1).

Lynx crusher pad and adjacent wetland taken during site visit.

Table 1 – Waste Rock and Coarse Kimberlite Reject Material Deposited in 2023

Waste Produced	Deposit Location	Quantity (wmt)
Sable Pit	Sable WRSA	16,401,000
Misery Underground	Misery/Lynx WRSA	109,000
Central Mill Processing Facility	CKRSA	1,074,000

Waste Rock Geochemical Testing

Waste rock from active mining areas is sampled for physical and chemical testing, including acid-base accounting (ABA) and the identification of major and trace elements, including metals. This testing is necessary to determine the best way to manage and store the waste, use it as a construction material, and develop closure and reclamation plans and strategies.

Three samples of waste rock from Misery Underground are tested each year while the CKRSA is sampled quarterly and sampling from the Sable pit is not routinely undertaken. All samples collected in 2023 were classified as being non-Potentially Acid Generating. The sampling of waste rock at Sable was completed in 2019 after only two years of operation because, at that time, the Wek'èezhìı Land and Water Board (WLWB) agreed with Arctic Canadian Diamond Company that the likelihood of acid rock drainage and metal leaching from

Landscape view of Misery Road.

the granitic waste rock was low. The Agency does not agree with this approach and suggests that routine sampling at all areas of mining occur, which is consistent with modern mining practices and closure planning.

The Agency acknowledges that, after many years of encouragement, Burgundy has begun using the Modified Sobek testing procedure to determine the acid neutralizing potential (NP) of waste rock. This change reduces the likelihood of over-estimating the acid NP by accounting for only carbonate minerals and the most reactive of the silicate minerals. While an improvement, this remains a static testing procedure and it unclear whether the Modified Sobek procedure is as effective as kinetic testing in reflecting the natural physical and chemical weathering processes (heating and cooling, wetting, breakage of rock pieces by movement, chemical oxidation and other natural processes) that occur in rock piles over the long-term. The change in testing procedures also means caution must be taken when comparing recent waste rock testing results with the broader historical Ekati geology database. Burgundy needs to complete their on-going study into what factors influence NP in waste rock at the Ekati mine before direct comparisons with the historical database can be made.

Point Lake Waste Rock Storage Area Design

Waste rock from the Point Lake pit is different than other waste rock at the Ekati mine as it is almost all metasediments. Geochemical testing confirms that metasediment has a greater potential to generate acid and release metals and other contaminants in seepage that daylights from the WRSA than other non metasediment waste rock at the Ekati mine. As a result, seepage must be collected and managed in the King Pond Settling Facility (KPSF) and/or Lynx pit before being released to the environment, and the WRSA

maintained in a perpetually frozen state following closure.

Burgundy submitted an updated Point Lake WRSA Design Plan and seepage prediction report to the WLWB for approval in July 2023. The design proposes separate waste rock and overburden stockpiles located adjacent to the pit. Channels and sumps constructed at the toe of the WRSA would collect the daylighted seepage. The Design Plan also proposes a preliminary closure cover design comprised of a 3 m layer of overburden and 0.5 m of granite waste rock for a total cover thickness of 3.5 m.

The Design Plan was approved by the WLWB in November 2023 allowing construction of the Point Lake WRSA to proceed. The WLWB also required ground temperature monitors to be installed during construction of the WRSA; and the future submission of updated closure costs and closure cover studies (e.g., to improve freezing and reduce precipitation infiltration of the closure cover).

Point Lake Overburden Storage Area Design

The design proposes construction of a single waste rock stockpile located adjacent overburden pile to store up to 5.6M m^3 of overburden. An estimated 2.5M m^3 of the overburden would be utilized for construction of the eventual WRSA closure cover.

The Water Licence requires Burgundy to direct all seepage from the Point Lake Project, including seepage from the overburden pile, to the KPSF and/or Lynx pit for management. In February 2024, Burgundy argued this is unnecessary as overburden is a ubiquitous natural material and the Licence excludes the overburden pile from the requirement to collect seepage. The Agency supported the request. In its April 2024 decision, the WLWB agreed that collection of seepage and runoff at the Point Lake overburden pile, access road and work pad is not required, but directed that Burgundy conduct monthly visual inspections for seepage at the toe of the pile during its construction.

Sable Development Storage Pad Expansion

In July 2023, Burgundy sought approval from the Department of Environment and Climate Change (ECC) to expand the existing Sable mobile equipment maintenance laydown pad. As it was proposed, 15,850 m^3 of granite waste rock would be used to expand the laydown area footprint by as much as 1.8 ha. The Agency supported the request as Burgundy argued the work would address safety concerns around potential vehicle and pedestrian congestion and not result in significant environmental impacts.

In January 2024, Burgundy sought another approval, this time to expand the existing Sable ore storage and crusher stockpile pads. The request sought approval to dispose an unplanned 2M m^3 of waste rock resulting from a 2021 order from the Workers' Safety and Compensation Commission to address safety issues at the Sable pit. Despite the existing Sable WRSAs not having been completely constructed,

Sable Waste Rock Pile, Open Pit and Two-Rock Sedimentation Pond photo courtesy of Ekati Diamond Mine.

Burgundy argued using waste rock to expand the storage pads by as much as 21.6 ha would have immediate operational and economic advantages by reducing the distance, amount of fuel and equipment hours needed to move the waste. The request was approved by ECC in February 2024. In the longer term, Burgundy committed to submit an updated Sable WRSA Design Plan to the WLWB for public review.

Unlike new applications for Land Use Permits and Water Licences which are subject to preliminary screening and public review through the WLWB, a public review of these laydown area expansion requests was not undertaken as ECC concluded the changes fell within the scope of Burgundy's existing Land Use Permit and Water Licence.

Seepage Management

Water that contacts waste rock and emerges from WRSAs is referred to as seepage and is regulated under Ekati's Water Licence. Under the current management process, all seepage must meet the Effluent Quality Criteria (EQC) established under the Water Licence where it daylights from the pile. Where it has concentrations that exceed the EQC, the event is an unauthorized release.

Seepage fundamentally differs from large points of controlled discharges of wastewater, such as the Long Lake Containment Facility, because of its inconsistent and intermittent occurrence, short surface flow through terrestrial environments and multiple flows into a single receiving waterbody. For this reason, it is widely recognized that the current management process is not suitable for managing the ecological risks associated with seepage.

Burgundy submitted a new proposed ecological-based Seepage Response Framework to the WLWB for approval in March 2024. The Framework, which would work in conjunction with Ekati's existing seepage sampling and monitoring program, proposes to establish

new action levels for seepage water quality and outlines pre-determined responses that would be taken when action levels are exceeded. The approach is intended to provide an improved "early warning" system to protect the terrestrial environment into which seeps daylight as well as downstream waterbodies (lakes and streams) and aquatic life (fish, invertebrates, aquatic plants and algae). Until a new Response Framework is approved, the existing management process (e.g., all seepage must meet EQC where it daylights from a WRSA) continues to apply.

The Agency believes this proposed seepage management approach holds promise for better managing seepage and will be participating in the public review process.

Seepage Water Quality Surveying and Testing

Seepage found to be daylighting from a WRSA is sampled and analyzed during spring freshet and fall of each year, except for the Point Lake Project where seepage will be collected in a sump and trucked to the KPSF. Thirty four seeps were sampled in 2023 near the Panda/Koala/Beartooth, Fox, Misery, Lynx and Pigeon WRSAs. This compares to 32 seeps sampled in 2022. Unlike previous years, none of the Sable WRSA seeps had measurable flows in 2023.

Burgundy reports that seepage quality across the WRSAs generally showed similar concentrations and seasonal trends (freshet to fall) when compared to historical data sets. Despite the similarities, several general trends continue to be displayed: decreasing levels of nitrogen compounds suggest the progressive flushing of explosive and blasting residue within the WRSAs; variable levels of dissolved metals and other parameters suggest chemical weathering or dissolution is continuing to occur along the internal flow paths; and a slow progressive increase in pH levels in daylighting seepage continues to be observed.

Under the current management process, seepage quality is compared to EQC and the historical seepage dataset to identify potential unauthorised discharges and long-term trends. Seeps that exceed these criteria are classified as Seeps of Potential Concern (SoPC). Twelve SoPC were identified in 2023. In each case except one, Burgundy maintained regular monitoring of the suspect seep. The exception was seepage from the Lynx Crusher Pad, where Burgundy sought the GNWT Inspector's direction on how to manage the on-going discharge.

Table 2 – Waste Rock Storage Area (WRSA) Physical Characteristics[1]

WRSA	Panda/ Koala/ Beartooth	Fox	Pigeon	Misery/Lynx	Sable	Point Lake	Point Lake Overburden	Coarse Kimberlite Reject[2]
Operational Status	Complete	Complete	Inactive	Active	Active	Planned	Planned	Active
Rock Types	Granite Diabase Till	Granite Diabase Kimberlite Till	Granite Metasediment Till	Granite Diabase Metasediment	Granite Diabase	Metasediment	Overburden	Coarse Processed Kimberlite
Planned Footprint (km^2)	3.4	3.2	0.8	1.5	0.7	0.7	0.3	1.2
Planned Height (m)	50	50	70	65	65	48	40	50
Internal Facilities[3]	Overburden Stockpile, Waste Rock Quarry, Landfill, Landfarm	Overburden Stockpile HC Impacted Material[4]	None	Overburden Stockpile Landfill HC Impacted Material[4]	None	None	None	None

Notes

1 Source – Interim Closure and Reclamation Plan v3.1.

2 The Coarse Kimberlite Storage Area is located within the Panda/Koala/Beartooth WRSA and is managed separately.

3 'Internal Facilities' refers to other types of materials stored within the footprint of the WRSA.

4 Hydrocarbon Impacted Material is rock and soil greater than 4 cm in diameter that contains spilled hydrocarbons.

WASTEWATER AND PROCESSED KIMBERLITE MANAGEMENT

HIGHLIGHTS

- Burgundy discharged more than 790,000 m^3 of water from King Pond Settling Facility (KPSF) in 2023. This is 319,000 m^3 more than the annual limit authorized in the Water Licence. The water was primarily from dewatering at Point Lake.
- Burgundy received authorization to pump fresh water from Upper Exeter Lake into the Long Lake Containment Facility (LLCF) if necessary to address shortfalls of water for the Process Plant.
- In the renewed Water Licence the Wek'èezhìı Land and Water Board (WLWB) updated and improved conditions related to management of dams in the LLCF. These will help in developing a management system that is more consistent with current best-practice for management of mining dams in Canada.

Definitions

Effluent Quality Criteria (EQC): numerical or written limits on the quality or quantity of effluent authorized for deposit to a water body.

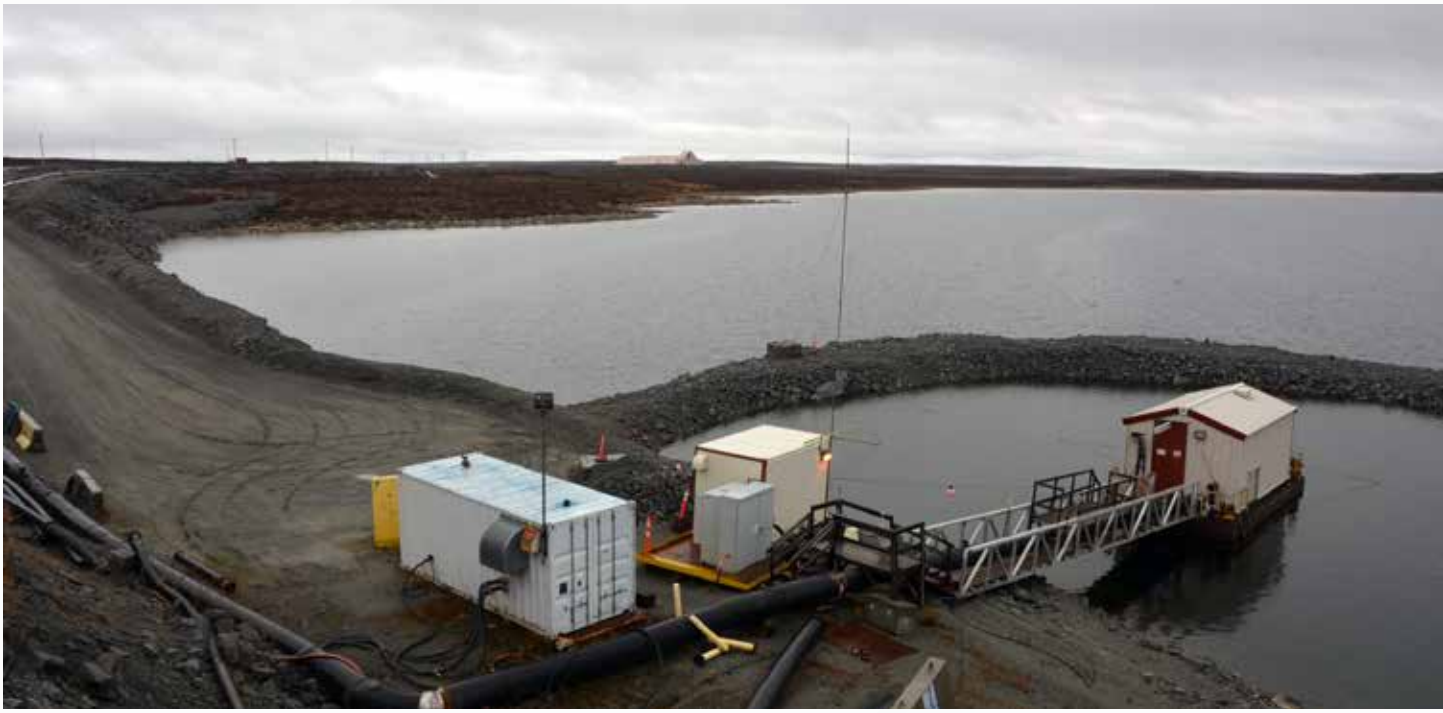
Fine Processed Kimberlite (FPK): very small particles (sand, silt, clay) sized less than 0.5 mm in diameter, left over as waste from the process of removing diamonds from the kimberlite ore. FPK is the fine portion of Tailings.

Tailings: by-products of mining, consisting of the processed rock or soil left over from the separation of the commodities of value (i.e., diamonds at Ekati) from the rock or soil within which they occur.[1]. At the Ekati mine, Burgundy refers to tailings as Processed Kimberlite.

Wastewater: water that is impacted by mining activities and facilities, either by contact with mine wastes (e.g., waste rock, processed kimberlite) or mine disturbances (e.g., roads), or through use in mine-related processes.

Two Rock Sedimentation Pond at Sable site.

1 International Council on Mining and Metals, United Nations Environment Program, Principles for Responsible Investment. August 2020. Global Industry Standard on Tailings Management.



Cell D of the Long Lake Containment Facility.

Wastewater Discharge and Containment

Burgundy is authorized to discharge wastewater from specific locations at the Ekati mine provided that the water meets EQC. In 2023 Burgundy discharged over 790,000 m^3 of wastewater from King Pond Settling Facility (KPSF) to Cujo Lake. Burgundy did not report any other discharges of wastewater.

Volumes of wastewater discharge have fallen substantially in the past three years with over 16 million m^3 in 2020, over 8 million m^3 in 2021, and over 4 million m^3 in 2022. Most of the wastewater discharged in 2020 and 2021 was from the LLCF to Leslie Lake, while most of the discharge in 2022 was from Point Lake to Lac du Sauvage coming from Point Lake dewatering. The 2023 discharges from the KPSF were primarily from Point Lake dewatering.

Burgundy is also authorized to use fresh water and certain wastewater sources for dust suppression on roads. Burgundy used approximately 153,000 m^3 of water for road watering in 2023; approximately 13,000 m^3 of wastewater from Two Rock Sedimentation Facility (TRSF), approximately 22,000 m^3 of fresh water from Lac de Gras and approximately 118,000 m^3 of fresh water from Falcon Lake. The total amount of water used for road watering is more than 2 ½ times greater than in 2022 (approximately 55,000 m^3) indicating increased effort to control dust from roads at the Ekati mine.

On November 1, 2023 Burgundy notified the inspector that it had exceeded the maximum allowable

fresh water withdrawal from Falcon Lake. In 2023, Burgundy used 117,600 m^3 of Falcon Lake fresh water for dust control on roads, while the licence limits withdrawal to 100,000 m^3 per year. According to Burgundy, the exceedance arose because Burgundy failed to report 20,480 m^3 of fresh water use in May 2023.

As part of ongoing operations, Burgundy also collects and transfers wastewater in and among facilities at the site. The management of open pit and underground wastewater during 2023 is summarized in Table 3.

Table 3 – 2023 Open Pit and Underground Water Management

Mine Area	Source	Water Management Action	2023 Volumes (m^3)
Panda-Koala	Open Pit	Pumped to LLCF or Process Plant	0 to LLCF or Process Plant
Beartooth	Open Pit	Pumped to LLCF	2,430,000 to LLCF
Fox	Open Pit	Pumped to LLCF during operation. Currently accumulating in pit.	0 to LLCF
Pigeon	Open Pit	Pumped or trucked to LLCF or Beartooth PCKA during operation. Currently accumulating in pit.	0 to LLCF or Beartooth PKCA
Sable	Open Pit	Pumped or trucked to TRSP.	14,000
Lynx	Open Pit	Pumped or trucked to KPSF.	0 to KPSF
Misery	Misery Underground	Pumped to KPSF.	53,000
	Misery Pit and WRSA	Pumped to Lynx Pit.	97,000
	KPSF	Pumped to Lynx Pit.	2,379,000

All sewage wastewater from the site is treated in the sanitary sewage treatment plant located at the main camp. Sewage from washroom facilities outside of the main camp complex is trucked to the sewage treatment plant.

Treated wastewater from the sewage treatment plant flows through a pipeline to the process plant, where it is mixed with FPK and then discharged to one of the processed kimberlite containment areas.

Point Lake Dewatering Program

Point Lake dewatering continued in 2023, with approximately 3.5 million m^3 of fresh water pumped

from Point Lake to KPSF between June and October. Wastewater from KPSF was then either pumped to Lynx Pit or discharged to Cujo Lake. Burgundy initially planned to complete the Point Lake dewatering in 2022, but only completed the initial phase of dewatering to Lac du Sauvage. Dewatering remained incomplete at the end of 2023.

KPSF Discharge

In October 2023, Burgundy notified the inspector that it had discharged 790,000 m^3 of wastewater from KPSF. Most of this wastewater was from Point Lake dewatering in 2023. The volume discharged exceeded the licence limit of 470,915 m^3 in any year. Burgundy also reported that it exceeded the daily discharge limit of 1,872 m^3 on two days in August 2023. While the initial exceedance occurred on August 16, Burgundy did not discover the non-compliance until it was preparing the August Surveillance Network Program report, a report submitted on September 30. It notified the inspector of the non-compliance on October 13, 2023, almost 2 months after the initial non-compliance happened.

Upon learning about the non-compliance, GNWT noted that the water discharged from KPSF was largely "natural lake water from dewatering of Point Lake" and advised Burgundy that no further enforcement action would be required if Burgundy demonstrated that the discharged water met EQC.[2] Burgundy submitted a report on November 1, 2023 and GNWT has not taken any further enforcement action.

On September 22, 2023, Burgundy reported exceedance of EQC for discharge from KPSF to Cujo Lake. Sample collection on August 22, 2023 had a Total Suspended Solids concentration of 570 mg/L while the maximum allowable concentration under the Water Licence is 25 mg/L. The Total Copper concentration from the same sample was 0.023 mg/L while the maximum allowable concentration is 0.007 mg/L. Burgundy identified the cause of the exceedances as heavy equipment working near the inlet of the discharge pipe.

KPSF Operations and Maintenance

The Annual Geotechnical Inspection for the KPSF directed that Burgundy should lower water levels in KPSF to no higher than 444.7 m above sea level prior to freeze up each year, to reduce the thermal load on the dam. In its December 2023 pumping summary, Burgundy stated that the water level in KPSF was 445.1 m above sea level on October 16, 2023. The report does not identify the specific requirement for a freeze up water level, and no further information was provided to confirm whether the pond was lowered to the required level prior to freeze up.

Management Systems

The exceedance of allowable water volumes at KPSF and Falcon Lake, exceedance of EQC due to equipment working next to a discharge pipe, and uncertainty about achievement of KPSF geotechnical operational requirements are all indicators that Burgundy's environmental and operational management systems need improvement.

2 Letter from GNWT Inspector Jamie Steele to Sheila Chernys, October 16, 2023.

The Agency is concerned that these systems failed to adequately track and control water use and wastewater discharge in accordance with the Water Licence, whether with respect to volumes or quality especially when operational activities are the cause of wastewater quality exceedances. The Water Licence is the primary regulatory instrument for the site and Burgundy is responsible for ensuring that it understands and complies with the licence conditions. The Agency is also concerned about whether Burgundy has management systems in place to ensure implementation of dam operation requirements. For example, is there an up-to-date Operations, Maintenance and Surveillance Manual for the KPSF dams?

Recommendation: Burgundy should ensure that up-to-date management systems and plans are in place to ensure ongoing and consistent compliance with their Water Licence and Land Use Permits, and effective implementation of operational environmental requirements.

Fine Processed Kimberlite and Process Plant Water Management

In 2023, approximately 77% of FPK and 69% of process plant liquids were placed in the Panda and Koala pits, with the LLCF receiving the remaining portions. Table 4 lists volumes of FPK and process plant water deposited in each storage facility in 2023. More FPK and process plant liquids were placed in the LLCF in 2023 than in 2022.

The LLCF remained the sole source of water for the process plant, with approximately 5.9 million m^3 of water withdrawn from the LLCF in 2023 and only approximately 1.3 million m^3 of wastewater returned to the LLCF with FPK. This created a deficit of approximately 4.6 million m^3 of water in the LLCF. This approach, which has been taken since 2020, is fundamentally different from the ongoing recycle of process water that occurred prior to 2020 when FPK was only deposited in the LLCF. In 2023 the deficit was partially addressed by pumping of 2.4 million m^3 of wastewater from Beartooth Pit to the LLCF, thereby making use of existing wastewater for the Process Plant.

The ongoing water deficit in the LLCF created by use of water in the Process Plant led Burgundy, as part of its Water Licence renewal application, to request authorization to use fresh water from Upper Exeter Lake to meet water demands on site. As part of its Water Licence renewal, the WLWB authorized contingency use of fresh water from Upper Exeter Lake for meeting Process Plant demands. Burgundy can now pump fresh water from Upper Exeter Lake to the LLCF for use in the Process Plant under certain conditions. Water use for this purpose is limited to 4 million m^3 per year. In any year that Burgundy wants to transfer Upper Exeter Lake fresh water to the LLCF, it can only do so after providing a report to the Inspector that describes how much fresh water is needed and the criteria and conditions that led to the need for fresh water. Burgundy did not use any fresh water from Upper Exeter Lake in 2023.

Minewater discharge into Cell D of LLCF taken during site visit 2023.

The Agency is concerned about the implications of using fresh water from Upper Exeter Lake to supply the Process Plant.

The reliance on fresh water instead of recycled water will lead to increased accumulation of wastewater on site, primarily in the Panda and Koala pits. This wastewater will require active management as part of closure and reclamation. As a result, the accumulation of wastewater has an associated accumulation of closure liability.

Table 4 – FPK and water volumes deposited into PK Containment Facilities in 2023

Facility	Process Plant Solids – FPK (m^3)	Process Plant Liquids (m^3)
LLCF	117,000	1,299,000
Panda Pit	210,000	888,000
Koala Pit	1,075,000	4,897,000
Beartooth PKCA	0	0

Recommendation: The GNWT, in conjunction with the WLWB, should adjust the liability estimates and security bond requirements to account for closure costs associated with management of wastewater accumulated in pits that are used for storage of FPK.

Management of Tailings Dams

Management of tailings dams at the Ekati mine was a topic of significant discussion during the Water Licence renewal process in 2023. Several structures in the LLCF provide containment for the FPK, the fine portion of "tailings" from Burgundy's diamond recovery process, and wastewater. The internal dikes and the Long Lake Outlet Dam all meet the definition of dams according to the Canadian Dam Association.

The Dam Safety Guidelines and the Technical Bulletin: Application of the Dam Safety Guidelines to Mining Dams (both from Canadian Dam Association) describe rigorous processes for prudent management of tailings dams. In accordance with the Dam Safety Guidelines, the management regimes for dams are to be founded on dam classification – a process for evaluating the risks of failure for each dam.

The 2023 Annual Geotechnical Inspection Report (the "2023 Geotechnical Report", TetraTech, 2023) completed for Ekati states "Dam classifications have generally been assigned based on a qualitative review of site conditions and available design data and are summarized in this report. Dam classifications are currently being reviewed based on existing site operations and environmental conditions. Updates to the dam classifications if deemed necessary in the review will be documented in subsequent annual geotechnical inspections." The current dam classifications do not rely on a robust understanding of site conditions and the risks associated with the dams in the LLCF, for example Burgundy has confirmed that no inundation studies to evaluate the downstream consequences that could arise from dam failure have been conducted for the LLCF. This means that there is not a good understanding about what would happen if one of the dams failed.

In response to concerns about management of tailings dams, the WLWB incorporated more up-to-date conditions for dam management in the renewed Water Licence. The Licence requires that the next annual geotechnical inspection report include detailed technical rationales for the dam classifications. It also requires submission of an Operations, Maintenance and Surveillance (OMS) Manual for dams at the Ekati mine. The WLWB also required Burgundy to identify an Engineer of Record for each dam. The Engineer of Record must accept responsibility for the design and performance of dams.

None of the new dam related requirements were met before submission of the 2023 Annual Geotechnical Inspection Report. However, the report does acknowledge that additional work is required with respect to dam classification and development of an OMS Manual. The report proposes that OMS Manuals will be completed by the end of 2023 but the Agency is not currently aware of planned dates for submission.

Independent Tailings Review Panels are common for large tailings management facilities like the LLCF and provide a mechanism for independent oversight about the design, operation and closure of tailings facilities. The WLWB's standard Water Licence conditions include a requirement for establishing Independent Tailings Review Panels for this type of facility. The renewed Water Licence provides

Koala Pit receiving processed kimberlite during site visit 2023.

for possible establishment of a Tailings Review Panel, but the WLWB decided that it would wait until submission of the first Annual Geotechnical Inspection Report before making a final decision about the need for an Independent Tailings Review Panel.

During the Water Licence renewal process, the Agency expressed concern that the current approach to management of the LLCF and its associated tailings dams is not consistent with current best-practice for management of mining dams. The Agency is pleased that the renewed Licence includes some important updates in requirements related to dam management.

CLOSURE AND RECLAMATION

HIGHLIGHTS

- The WLWB did not approve the latest proposed Interim Closure Reclamation Plan (ICRP) document because it lacked sufficient progress towards an executable closure and reclamation plan. The WLWB set April 2026 as the deadline for Burgundy to submit ICRP v4, which must include proposals for all closure criteria.
- Burgundy submitted closure related designs for Pigeon Pit (littoral areas) and Pigeon WRSA. These are important parts of component-specific Final Closure and Reclamation Plans for these facilities.
- Financial security increased by approximately $20.7 million in 2023 following GNWT's comprehensive review of liability.
- Burgundy has agreed to a process and schedule to convert its financial security from surety bonds to cash.
- GNWT is reviewing and updating its policies related to forms of security to address concerns about use of surety bonds, especially late in mine life.

Definitions

Progressive Reclamation: Reclamation activities undertaken before the end of commercial mining activities, generally used for areas and site components where mining activities are complete.

Surety Bond: A financial guarantee from a bonding company to cover closure and reclamation costs if the mine operator defaults on its obligations to complete closure and reclamation. Surety bonds typically require governments to draw from the bond to recover costs incurred in meeting a mining company's obligations. Surety bonds do not directly affect a mining company's capital borrowing capacity.

Irrevocable Letter of Credit (ILOC): A financial guarantee, typically from a bank, to cover closure and reclamation costs if the mine operator defaults on its obligations to complete closure and reclamation. ILOCs are typically an unconditional obligation to pay upon an operator's default. ILOCs directly affect a mining company's capital and borrowing capacity.

Closure Planning Progress and Status

When mining is complete at the Ekati mine, effective implementation of closure and reclamation activities will require a well-developed, comprehensive

Two Rock Sedimentation Pond taken during site visit.

Drainage feature in Cell B of the Long Lake Containment Facility.

Fog at Sable pit with the Waste rock pile in background photo taken during site visit 2024.

Closure and Reclamation Plan (CRP). As mining progresses, the importance of having a comprehensive, executable plan for closure and reclamation of the site increases. Burgundy expects that the currently approved mining activities will provide ore for the process plant through to approximately the end of 2029[1]. The Water Licence requires Burgundy to submit a Final CRP (FCRP) no later than 24 months before planned completion of commercial operations – i.e., by the end of 2027. Despite the approaching completion of approved mining activities, Burgundy made only incremental progress in closure planning in 2023, focused on planning for closure of the Pigeon Pit and Waste Rock Storage Area (WRSA).

In February 2020, the WLWB conditionally approved the August 2018 Interim Closure and Reclamation Plan (ICRP) v3.0 and set out requirements and timing for Burgundy to develop and submit ICRP v3.1. The WLWB directed Burgundy to provide additional detail, especially with respect to closure objectives and criteria, and to submit the revised plan no later than March 2021. However, progress took longer than planned, primarily because of the level of effort required to develop and refine closure objectives and criteria, as well as delays caused by COVID-19 health protection measures.

After several delays, Burgundy submitted ICRP v3.1 in December 2022, 21 months after the initial deadline. In accordance with a further July 2022 WLWB decision, ICRP v.3.1 was intended to provide additional detail to demonstrate progress on development of an executable CRP. The WLWB requirements focused on refining and finalizing closure criteria, and developing detailed plans for closure and reclamation of

1 Arctic Canadian Diamond Company Ltd. April 2024. Ekati Diamond Mine Environmental Agreement and Water Licence Annual Report 2022.

mine components that are no longer in use. The WLWB also set December 2024 deadlines for developing final closure criteria and completing reclamation research required for any mine component associated with an area of the mine where mining has ended or will be completed by December 2024 (e.g., completed pits and WRSAs).

In April 2023 the WLWB confirmed that ICRP v3.1 did not conform with their previous direction to advance the level of detail. Burgundy proposed that these issues could be deferred to a FCRP in 2027. For example, Burgundy proposed there was no need to identify all closure criteria until the FCRP. The WLWB concluded that ICRP v3.1 did not meet the WLWB's expectations for a CRP at this stage of the mine's life. This led the WLWB to conduct a narrowly focused public review of ICRP v.3.1, specifically to consider timing for submission of ICRP v.4.0 and Burgundy's plans for addressing reclamation research and closure criteria.

The WLWB released its final decision on ICRP v3.1 in April 2024. It did not approve ICRP v3.1 and required Burgundy to submit ICRP v4 no later than April 2026. ICRP v4 is to include all proposed closure criteria and a report on all reclamation research that has been completed. Consistent with its previous direction related to planning for closure of areas where mining is complete, the WLWB set schedules for Burgundy to submit FCRPs for the Pigeon Pit (December 2024) and Pigeon WRSA (April 2025). The WLWB also required that Burgundy provide annual updates on progress for development of closure criteria and progressive reclamation.

The Agency reviewed ICRP v3.1 and agrees with the WLWB that the submission did not advance closure planning to a level consistent with the stage of mine life at the Ekati mine. The WLWB's decision to require submission of ICRP v4 by early 2026, including requirements for proposed closure criteria and results of reclamation research, is critical to advancing closure planning in a way that is consistent with the WLWB and Mackenzie Valley Land and Water Board (MVLWB) closure guidelines.

Closure criteria are critical because, in their absence, it is not possible to evaluate the relative performance of closure options or the adequacy of expected performance for proposed closure methods. This gap leads to uncertainty about whether the proposed closure plans and methods will achieve the closure objectives once the closure criteria are defined. This makes it impossible to accurately estimate the liabilities associated with implementing the necessary closure plan or set security to address those liabilities. It also leads to greater pressure to have the closure plan drive the objectives rather than the other way around: the farther advanced the plans and designs are before the criteria are established, the greater the pressure will be to set criteria consistent with what the plans can achieve. Such an outcome defeats the purpose of the objectives-based approach to closure planning that is the foundation of the MVLWB Closure Guidelines (2013).

The Agency is pleased with the WLWB decision that establishes clear schedules for advancing closure planning and progressive reclamation. Given the approaching end of authorized mining activities and the level of effort required to finalize an executable FCRP, substantial progress on closure

View from Sable crusher pad taken during site visit 2024.

planning is urgent. Fortunately, the WLWB's decisions about ICRP v3.1 now establish clear schedules for submission of ICRP v4 and component-specific FCRPs for Pigeon. The WLWB has also required that these submissions include some key content that is required to advance closure planning. The Agency looks forward to participating in and providing input to the closure planning process as it advances.

Progressive Reclamation – Pit Flooding

Burgundy did not undertake progressive reclamation activities in 2023, but did make progress in closure planning for the Pigeon Pit and WRSA. It also initially considered back flooding for Fox Pit.

In January 2023, Burgundy submitted Back Flooding Plans for Fox and Pigeon pits. These Plans described the proposed approaches for filling the pits with fresh water, including the proposed sources of water, pumping and piping systems, and filling rates. At the time, Burgundy planned to start pumping water into Fox Pit in 2023 and Pigeon Pit in 2024. Changes in potential future mining plans led Burgundy to cancel its plans for flooding of Fox Pit. After considering input from a public review, the WLWB did not approve either of the flooding plans for two main reasons. First, the proposed water use for pit filling was not authorized in the Water Licence, an issue subsequently addressed through the Water Licence renewal. Second, the WLWB was concerned that there were no proposed or approved closure

criteria for pits, meaning that reviewers and the WLWB could not reach conclusions about whether the proposed flooding plans would achieve closure objectives, including with respect to water quality.

The WLWB directed that component-specific FCRPs would be required for future proposed progressive reclamation activities, including the Fox Pit flooding. This is consistent with the requirements of the renewed Water Licence. Because of the urgency associated with flooding of Pigeon Pit[2], the WLWB provided an opportunity for Burgundy to proceed, provided it acknowledged that the flooding would be undertaken without certainty about closure criteria, and that flooding would not compromise achievement of final closure criteria.

As part of its 2022-23 Annual Closure and Reclamation Progress Report, Burgundy has provided a Pigeon Pit Closure Design Plan and a Pigeon WRSA Updated Design Report. Although these have not been reviewed and approved, they are important components of component-specific FCRPs for these facilities. Both reports lack information about water quality predictions, but Burgundy indicates that it is working on modelling for these.

Truck moving rock at Sable taken during site visit.

The Agency has always supported progressive reclamation as an effective method to address environmental effects associated with mining activities and reduce closure liability. Therefore, the Agency is pleased that planning has begun for progressive reclamation at Pigeon Pit and WRSA. The Agency also agrees with the WLWB's decision that having closure criteria in place is important before major progressive reclamation activities proceed.

2 Flooding of the Pigeon Pit walls is the key closure measure for controlling potential acid-generation in the pit walls. "There is a relatively high percentage of metasediments in the Pigeon Pit wall (i.e., 50% metasediment), which if exposed to the atmosphere for an extended period, represents a risk to water quality" (WLWB Reasons for Decision, Closure and Reclamation Plan Version 3.1. April 12, 2024).

Progressive Reclamation – Old Camp

In 2023, Burgundy continued to monitor the success of progressive reclamation completed at Old Camp between 2014 and 2018. Water quality sampling showed one exceedance for Dissolved Aluminum (similar to 2019, 2020, 2021 and 2022) but no exceedance for Total Arsenic which has occurred in some past years (2018, 2019 and 2022). Based on the continued occasional exceedances, Burgundy indicates that it will continue to study the area to understand the sources of water quality exceedances. It also proposes that this information will support future decisions about the need for further reclamation work on the North Pond. The previously completed reclamation work for the North Pond was not consistent with the CRP for the site.

The Annual Geotechnical Inspection at Old Camp identified minor erosion and instability issues. The Inspection Report indicated that these are not immediate concerns but monitoring should continue. While minor erosion and instability issues that require ongoing monitoring may be acceptable while there is an ongoing site presence, they indicate that objectives for long-term closure likely have not been met.

The Agency believes that the reclamation at Old Camp offers an opportunity for Burgundy to demonstrate that it can implement closure measures that will meet closure objectives including suitable water quality and long-term stable land forms. These are conditions that will be critical for meeting walk-away closure objectives for all closed facilities. As such, the Agency supports further study about the water quality issues, and timely implementation of measures to address minor landform stability issues.

Recommendation: Burgundy should undertake a study to investigate causes of water quality exceedances in Old Camp runoff. Design of the study should consider whether more frequent monitoring is needed to better understand the causes of exceedances. Burgundy should also design and implement measures to address minor landform stability issues at Old Camp, with the intent of developing a better understanding of approaches that can be used for other site closure and reclamation activities.

Financial Security

To manage public liability and risk, at any point in time the GNWT needs to hold financial security equal to the total anticipated cost of closure and reclamation of the Ekati mine at that time. Based on a review of security held under Ekati's licences and permits, the total reclamation security held by the GNWT as of December 31, 2023 was approximately $313.3 million, held predominantly under the Water Licence as indicated in Table 5. The total security at the end of 2023 represents an increase of approximately $20.7 million from December 2022. Approximately $20.0 million of the increase was due to overall adjustments to costs estimates to account for inflation, and $1.3 million for liability increase at Point Lake. There was approximately $0.7 million decrease in security due to recognized reduction in liability for the former Jay project.

Table 5 – Total Security Held by GNWT for Closure of Ekati Mine as of December 31, 2023

Security Item	Amount Held
Water Licence Security W2022L2-0001	$289,475,441
Ekati Environmental Agreement	$19,991,424
Misery Underground Land Use Permit W2017D0004	$1,453,799
Jay Early Works Land Use Permit W2013D0007	$0
Point Lake Early Works Land Use Permit W2021X0004	$57,677
Point Lake Land Use Permit W2021D0005	$2,294,667
TOTAL:	**$313,273,008**

GNWT continues to hold most of the security in the form of surety bonds, with the remainder held as irrevocable letters of credit and cash. As part of the sale agreement between Arctic Canadian Diamond Company and Burgundy, Burgundy agreed to a process and schedule to convert the surety bonds to cash, with all bonds to be converted to cash by March 2024[3]. Being unable to meet this schedule, in March 2024, Burgundy reached a further agreement-in-principle with the surety bond providers to extend the schedule to late 2027[4]. More broadly, GNWT indicated that it is updating its policies related to decision-making about forms of security. It hopes to reduce reliance on surety bonds especially in later phases of mine life.

The Agency supports conversion of security into cash or cash equivalent forms. While surety bonds provide financial security for government if a company abandons a site, they do not provide incentives for mining companies to carry out closure and reclamation themselves. Surety bonds for reclamation do not directly affect a mining company's capital or borrowing capacity. When security is held in the form of surety bonds, a mining company must separately set aside the financial resources necessary for closure as mining progresses. If it does not do so, the mining company (in this case Burgundy) will not have adequate funds to carry out the closure and reclamation itself. If the company does not retain adequate funds to carry out mine closure and reclamation when security is held in surety bonds, then the only mechanism to complete closure is for the company to abandon the site so that government can claim the funds from the surety bond. The Agency also supports GNWT's plan to update policies about forms of security and looks forward to reviewing and considering the results.

3 Burgundy Diamond Mines Limited, May 24, 2023. Notice of Extraordinary Meeting, Explanatory Memorandum. https://burgundydiamonds.com/wp-content/uploads/2023/08/2023-05-24-Notice-of-Extraordinary-General-Meeting.pdf

4 Burgundy Diamond Mines Limited. March 27, 2024. 2023 Annual Report for the Period Ended 31 December 2023. https://burgundydiamonds.com/financial-reports/

Winter Road

The costs for constructing and maintaining the winter road that provides access to the Ekati mine is a substantial gap in the estimate of liability for closure and reclamation, and in the current financial security held by GNWT. Winter road access will be required for transporting equipment and supplies to and from the site during closure and reclamation. In the absence of security to cover these costs, there is a substantial liability currently held by public government if it is required to carry out closure and reclamation activities. In its April 2024 decision on ICRP v3.1 the WLWB set a December 2024 deadline for Burgundy to provide an updated cost estimate and proposed security adjustment that includes winter road access costs.

Sable crusher pad 2024.

Opening composter at incinerator composter building

IEMA booth at Tlicho Annual General Assembly

TRADITIONAL KNOWLEDGE AND COMMUNITY ENGAGEMENT

HIGHLIGHTS

- There was little engagement with Elders and communities regarding Traditional Knowledge in 2023.
- Burgundy's Engagement Plan was updated in 2023.

DEFINITIONS

Knowledge Holders: Indigenous people recognized within their own communities for their expertise, depth of knowledge and experience, and preservation of traditions.

Traditional Knowledge (TK): The entire, interconnected knowledge system of a group of Indigenous people — their spirituality, values and beliefs, environmental knowledge, transmission of knowledge and codes of practice.

Kitikmeot Inuit Qaujimajatuqangit (IQ): The traditional, current and evolving body of Inuit values, beliefs, experience, perceptions and knowledge regarding the environment, including land, water, wildlife and people, to the extent that people are part of the environment. *(from 2016 Inuit Impact and Benefit Agreement for National Wildlife Areas and Migrate Bird Sanctuaries in Nunavut)*

Drummers at Annual General Assembly in Whati.

Use of TK and Community Input in Environmental Programs

There was little community engagement and incorporation of newly obtained TK by Burgundy Diamond Mine (Burgundy) during 2023-24. The company attributes this to corporate disruption caused by the sale of the Ekati mine by Arctic Canadian Diamond Company to Burgundy, an Australian company.

Projects funded by Burgundy include:

- **Pike Creek Fish Monitoring:** 2023 marked the second year of community-based fish monitoring after remedial work was completed in 2018 to improve habitat for spawning and migration of Northern Pike and other fish species in Pike Creek, located near the community of Łutsel K'e. The project was done under a Fisheries Act Authorization to offset fish habitat destroyed by the de-watering of Lynx Lake at the Ekati mine.
- **July 2023: Tlicho Elders' Point Lake Project Site Tour:** The tour served to inform Tlicho elders of Burgundy's plans for the Point Lake Project and seek input from the elders. The company's 2023 Environmental Agreement and Water License Annual Report states: *"Arctic would like to*

acknowledge the constructive discussions and suggestions that all parties brought forward. The workshop and tour outcomes were helpful for the Point Lake Project planning process…" The Agency is not aware however, of any specific TK related suggestions or advice collected during the tour and discussions that has altered or enhanced the plans for the Point Lake mining project.

Engagement with Indigenous Communities

After taking ownership of the Ekati mine in July 2023, Burgundy began engagement meetings with the leadership and staff of all the Indigenous Government and organizations that Burgundy engages withSociety members. The purpose of these meetings was to introduce Burgundy leadership and its intentions on extending the life of Ekati, including details of the currently planned Sable Underground. Burgundy reports that the goal of engagement is to "strengthen relationships with local Indigenous groups through ongoing community engagement that respects values, beliefs, knowledge, and experiences"[1] Through these meetings Burgundy received input and concerns on use of TK and the management of caribou, water quality, fish, and mine closure.

Sable Underground Project
Community engagement for this project began in November 2023. Tlicho Government employees and elders provided input on the final design plan for the waste rock storage area during a January 2024 site visit.

All Indigenous Governments and organizations that Burgundy engages with Indigenous Society members were contacted through meetings, letters and e-mail correspondence, with further meetings and possible site visits scheduled for spring and summer 2024.

November 2023: Environment Impact Report Workshop: The workshop was held to discuss the final 2022 EIR Report and identify improvements that could be made for the 2025 report. No reporting by the company of suggestions from community representatives could be found.

Burgundy's Engagement Plan

Updated versions 5.0 and 5.1 of Burgundy's formal Engagement Plan were approved by the Wek'eèzhìı Land and Water Board in 2023.

In the process of applying for new licences or permits, the company prepares a pre-application Engagement Log. In every Engagement Log a section titled "summary of issues raised by interested party" highlights all unresolved disputes raised by the interested parties. In reviewing this plan, the Agency recommended that any unresolved disputes between the company and an interested party stemming from an engagement meeting should be made public.

The Agency also recommended that the Engagement Plan should include how Burgundy assesses scenarios where western science-based input doesn't align with Traditional Knowledge-based input. Burgundy responded that under Part B: General Conditions of the Water License (W2020L2-0004); *"In each submission required by the Licence or a directive from*

1 Proposed Development of the Sable Underground Project – Project Description. P. 5-3

the Board, the Licensee is to identify all recommendations based on Traditional Knowledge received, describe how the recommendations were incorporated into the submission and ***provide justification for any recommendation not adopted."*** (emphasis added) In the Agency's opinion, Burgundy's response leaves an open question as to how it manages TK information that diverges with western science.

Traditional Knowledge Elders Group

The Ekati Traditional Knowledge Elders Group (TKEG) was originally established in 2016 to provide TK input into the design, operations and closure of the since-cancelled Jay Project. The scope of the TKEG was subsequently expanded and applied to the entire Ekati mine site. The TKEG last met in 2018 and has been inactive for several years. In 2023, Arctic Canadian committed to work collaboratively with interested parties to determine the future of the TKEG and discuss how the TKEG can contribute to operational and closure activities at the Ekati mine.

As the Agency stated in last year's Annual report, TK/IQ should be sought and documented in a timely manner and the knowledge holders should be consulted periodically to ensure that the past, current and proposed mining operations, practices, and understandings of the surrounding areas and evolving conditions are appropriate.

Contribution to Wildfire Relief Efforts

Burgundy responded positively to the 2023 wildfire impacts to Indigenous communities. The company assembled an incident management team to assist in providing food and lodging for wildfire-displaced Burgundy employees and their families, accommodations for emergency responders fighting the fires and assisting with emergency response and health and wellness support for people impacted by community evacuations.

Cujo Lake with thermister cable access 2024.

ASSESSMENT OF THE REGULATORS

Our Mandate

As the public watchdog for environmental management at the Ekati mine, the Agency monitors and reports on the performance of the operator as well as the agencies that regulate the mine.

Northwest Territories Department of Environment and Climate Change

On April 1, 2023 the Department of Lands and the Department of Environment and Natural Resources were consolidated into the Department of Environment and Climate Change (ECC).

North Slave Regional Office

Frequency of Inspections

In last year's Annual Report, the Agency recommended that ECC increase the number of regulatory inspections undertaken each year to pre-COVID levels (10 to 14 Water Licence (WL) inspections plus additional Land Use Permits). In response, ECC committed to increase the inspection frequency going forward. This commitment was not upheld in 2023 as Inspectors conducted only two WL and nine LUP inspections during seven site visits.

Regulatory Non-Compliance

Last year the Agency reported that one non-compliance event occurred - an Effluent Quality Criteria exceedance that resulted in water with high sediment levels being discharged to Lac du Sauvage as part of dewatering Point Lake. This year there were four reported non-compliance events: two discharges of non-compliant water from King Pond into Cujo Lake and two discharge volume exceedances. Besides setting water quality limits, the WL sets limits on the amount of water that can be discharged or withdrawn from the receiving environment. In 2023, Burgundy discharged 320,000 m^3 to Cujo Lake and withdrew 18,000 m^3 from Falcon Lake over their allowable limits. The Inspector was notified in each case by Burgundy. The Agency is concerned that these exceedances continue to occur without any apparent warnings or actions from the Inspector. For more detail regarding the exceedances refer to the Assessment of Burgundy Chapter.

Director looking at vegetation along an esker.

Directors observing vegetation test plots on Cell B of the Long Lake Containment Facility.

Sable Laydown Pad Extension Authorization

In February 2024, ECC authorized the expansion of two laydown areas at the Sable Pit following internal reviews. The Agency considers these expansions to be significant as they will cover an additional 21.6 ha of undisturbed land and require 695,629 m^3 of waste rock to construct. Notably, this expansion extends east of the Sable operations into a watershed that is outside of the existing Sable footprint defined in the LUP. The Agency is concerned that this level of disturbance was allowed to proceed without a transparent or public review first being undertaken. For greater details regarding the Sable Laydown Pad Extension refer to the Assessment of Burgundy.

Recommendation: The GNWT should review its policies and internal practices related to the scope and scale of operational changes that inspectors can authorize under an existing Land Use Permit, including the adoption of operational thresholds that, if exceeded, would require a public review be undertaken.

Regulatory and Permitting Division

Water Regulatory Section

The Water Regulatory Section (WRS) effectively participated in all major reviews. Staff participation and the use of technical consultants, in particular with the Aquatic Effects Monitoring Program Re-Evaluation review and the Water Licence Amendment process, provided great value during the various technical sessions, workshops and comment submissions.

In November 2022 the WRS requested a site-wide closure security update for the Ekati mine. The review resulted in a GNWT-held security that better reflects the current cost to close the mine. The Agency views this request as a positive proactive step to ensure the environmental liabilities associated with the mine are fully covered by the posted financial security.

Environmental Impact Assessment Section

The Environmental Impact Assessment Section (EIAS) is responsible for administering Ekati's Environmental Agreement. The 2022 Environmental Impact Report (EIR; an Environmental Agreement requirement) is intended to evaluate potential long-term impacts by comparing current conditions to original impact statement predictions and evaluating the operator's performance of adaptive management. EIAS did a good job ensuring that the 2022 EIR review was completed in a timelier manner than the previous EIR while use of the WLWB's Online Review System was helpful in organizing comments. On March 11, 2024 the Minister accepted the 2022 EIR as Satisfactory. Despite these positive measures, the Agency believes that the EIR approval process could benefit from greater consideration of reviewers' comments and a requirement that Burgundy incorporate changes into future EIRs.

Wildlife Management Division

The Wildlife Management Division (WMD) has the responsibility to protect and manage wildlife. In recent years, WMD has been increasingly involved in the regulatory process for the Ekati mine. WMD staff provided detailed comments on this year's Wildlife Camera Monitoring Report and were active participants in Caribou Telemetry study discussions. The Agency is looking forward to WMD's continued thoroughness in ensuring Burgundy meet or exceed their regulated requirements for wildlife management.

Environmental Protection and Waste Management Division

Environmental Protection and Waste Management Division (EPWMD) provided direction to Burgundy in March 2024 that their Air Quality Monitoring Program be updated so as to be consistent with the new GNWT Ambient Air Quality Monitoring Guidelines and to engage with regulators. The Agency has been recommending this update for several years and commends EPWMD for moving this initiative forward.

Fisheries and Oceans Canada

Fisheries and Oceans Canada (DFO) continues to have limited involvement in the review and monitoring of fish and fish habitat-related activities at the mine site, providing advice and direction, and informing the parties of their actions related to the Ekati mine operations. This includes providing updates on the Pike Creek Project done under a Fisheries Act Authorization meant to offset fish habitat destroyed by the mining at Ekati. The Agency expects DFO to be more actively engaged in evaluating potential impacts on fish and fish habitat and informing parties of DFO's associated activities.

Environment and Climate Change Canada

Environment and Climate Change Canada's (ECCC) involvement in regulatory processes continues to be helpful. There was a notable exception regarding their participation at the Point Lake Public Hearing in June 2023, where ECCC had a number of representatives participate. When ECCC representatives were

Agency directors touring site.

questioned on their Intervention by other participants, ECCC were unable to respond to many of the inquiries about toxicity testing and the setting of pH limits. They did not appear to have come prepared to respond to questioning that they should have known they would face.

Wek'èezhìı Land and Water Board

The Wek'èezhìı Land and Water Board (WLWB) continues to do an excellent job ensuring timely reviews of the many reports and monitoring programs required under the Water Licence and Land Use Permits. In particular, the Water Licence Renewal process was clear and well organized, with the Public Hearings providing good opportunity for all intervenors to adequately express their positions and ask questions of Burgundy and regulators. The Agency was also pleased to see that the WLWB shares reviewers' concerns about the lack of detail and the need to impose definitive timelines for the submission of key components in the next version of the Interim Closure and Reclamation Plan.

Misery camp and King Pond Seetling Facility.

ASSESSMENT OF BURGUNDY DIAMOND MINES

In June 2023, Burgundy Diamond Mines Ltd. (Burgundy) purchased the Ekati Mine from Arctic Canadian Diamond Company Ltd. Ekati is the first and only mine owned and operated by Burgundy, who previously was focused on cutting, polishing and the sale of diamonds.

Communications

Until recently Burgundy and the Agency would meet monthly to exchange information. However, due to staffing issues and changes at Burgundy these meetings did not occur during 2023-24. Regardless, the Agency believes that there remains a general positive and open relationship with the Company. The site visit and recent conversations make the Agency optimistic of continuing good relations and communications with Burgundy.

Director standing near Sable effluent flow path.

Site Visit

The Agency visited the Ekati mine over two days on October 3 and 4, 2023. These site visits are critically important in the Agency's role as the oversight body since they allow Directors and staff to see first-hand what site conditions are and not have to rely solely on reports and photos.

The Agency was glad that this year's site visit was over two days as the additional time on-site allowed Directors and staff to see more of the site. This was the Agency's first overnight visit since September 2017. Burgundy staff were very helpful and the Agency would like to thank them for answering our questions and making sure the site visit could happen despite significant weather delays.

Compliance with the Water Licence and Land Use Permits

In general, the Ekati mine continues to operate in compliance with its Water Licence and Land Use Permits. However, the Agency noted an increased number of non-compliant events in 2023.

Exceedance of Wastewater Discharge Volumes to Cujo Lake

In October 2023, Burgundy informed the Inspector that there was an exceedance of wastewater discharged from King Pond to Cujo Lake. The Water Licence requires *"The Licensee shall ensure that Discharge from the King Pond Settling facility does not exceed 470,915 cubic meters (m^3) annually"*. In this case, Burgundy had discharged more than 790,000 m^3, an exceedance of more than 319,000 m^3.

Effluent 'discharge' pipe to Horseshoe Lake.

Water Withdrawal Exceedance

In November 2023, Burgundy reported that 117,600 m^3 of water had been withdrawn from Falcon Lake, which is 17,600 m^3 more than the annual limit established under the Water Licence. This water was used for dust control on the Sable Road.

Exceedance of EQC Limits during Discharge

Records provided by Burgundy show that there were two exceedances of EQC limits in wastewater discharged from the King Pond Settling Facility (KPSF) into Cujo Lake in 2023. On June 27, 2023 levels of Total Suspended Solid (TSS) exceeded the EQC while on August 22, 2023 there were very high TSS and copper levels measured. TSS was measured at 570 mg/L (EQC is 25 mg/L) and copper was measured at 0.023 mg/L (EQC is .007mg/L). Of particular concern is the August 22 exceedance, since it was noted that heavy machinery was working in the KPSF close to the discharge pumps. The level of TSS should have been clearly visible to the operators and have triggered the pumps being shut off before discharge of the non-compliant wastewater occurred.

General Site Cleanliness

The Land Use Permit requires Burgundy to keep the mine site in a clean condition. During our visit the Agency noted that, unlike during our previous visits, garbage and other debris was observed around the site with areas not being well maintained. In particular we noticed unused piping with many of the pipes showing signs of disrepair and exposed broken pipe insulation having been spread around the area by wind. The Agency raised the issue of general site cleanliness and the maintenance of used piping in a follow up letter.

King Pond Settling Facility during mine site visit 2023.

Sable Laydown Pad Extensions

In January 2024, Burgundy submitted a request to the GNWT Environment and Climate Change (ECC) to extend two laydown areas at the Sable site. The request pointed out that Burgundy has an unanticipated 2 million m^3 of waste rock that needs to be placed at Sable, and outlined reasons why it couldn't be placed in the permitted, but unbuilt, waste rock storage areas (WRSA). Instead, Burgundy requested ECC authorize a 21.6 ha expansion of laydown areas located outside the approved footprint associated with the LUP. The necessity dates back to 2021 when safety concerns were first raised by the Workers' Safety and Compensation Commission. The Agency suggests that Burgundy should have used the available time to update WRSA design plan to accommodate the additional waste rock rather than request an operational change to activities allowed under the LUP.

Closure Planning

The Interim Closure and Reclamation Plan (ICRP) is a critically important plan that details how the mine will be closed and reclaimed and what environmental criteria the operator will have to meet post-closure. ICRP v3.0 was submitted in August 2018 and an updated ICRP v3.1 was submitted by Burgundy in 2023. The WLWB, the Agency and other reviewers are concerned with the amount of time it is taking to complete updating the ICRP and the lack of detail in the latest plan considering how long the Ekati mine has been operating. For greater detail regarding closure at the Ekati mine please refer to the Closure and Reclamation.

King Pond dam 2024.

AGENCY ACTIVITIES

Meetings

Each year the Agency conducts Board Meetings with all Directors. This year, there were three Board meetings in Yellowknife that Directors attended in person or online. During these meetings, Directors discussed issues and documents currently in review, recent events and workshops, and shared their interactions with Society Members. We also received presentations from Burgundy Diamond Mines (Burgundy), GNWT Inspectors and Closure Security specialists.

The Agency's Annual General Meeting was held in November 2023. Similar to previous years, this was a hybrid meeting with participants joining us both in person and online. The Agency was pleased to see that this year's AGM had one of the highest number of participants. We were joined by representatives from the Łutsel K'e Dene First Nation, Kitikmeot Inuit Association, Yellowknives Dene First Nation, North Slave Métis Alliance, the Government of the NWT, Burgundy and members of the public.

Ekati Site Visit

The Agency visited the Ekati mine over two days on October 3 and 4, 2023. This was the first time since 2017 a two-day visit was possible. We appreciated Burgundy's willingness to engage with Directors and staff, listen to our input and provide responses to our questions.

The Agency visited the following locations during the site visit:

- Main camp, including equipment boneyard and camp facilities
- Long Lake Containment Facility; including Dyke C and vegetation reclamation test plots
- Panda and Koala pits where processed kimberlite is being deposited
- Misery area to see the King Pond Settling Facility and discharge location to Cujo Lake
- Lynx Pit to observe pit water levels

- Point Lake area including the laydown area, road and associated lake de-watering piping
- Old Camp

Community Communications

Although the Agency always looks for opportunities to visit communities, we were unable to organize a visit or community workshop due to staffing changes and/or prior community commitments. The Agency is hopeful that community visits and workshops can resume in 2024-25.

Typical section of road with insulated water pipe at Ekati Diamond Mine 2023.

Other initiatives

The Site-Wide model

The site model was presented to various interested parties and is a useful tool to stimulate discussions. This typically occurred within the Agency's office or during meetings and workshops.

At the request of the Wek'èezhìı Land and Water Board (WLWB), the Agency brought our site model to the Water Licence Amendment Public Hearing in June 2023 in Behchoko. The model helped participants visualize the Point Lake Project, overall mine site and surrounding area and generate discussion. Videos of collared caribou interaction with the site were also displayed using the site model.

Development of the Agency's Resource Room

The Agency continues to develop its Resource Room to provide public access to historical information about the Ekati mine. The documents stored in the Agency office are currently being scanned and saved on a computer with the intention of developing a searchable online resource tool.

Workshops

The Agency had the opportunity to participate in seven workshops this past year:

- Water Licence Amendment Public Hearing
- Water Licence technical Session
- Environmental Impact Report

2022 workshop

- Geoscience forum
- Point Lake Waste Rock Storage Area Design Plan and Seepage Report Meeting
- Fisheries and Oceans Canda National Fisheries Act workshops
- Fisheries and Oceans Canda Point Lake Fish out discussion

Technical Review and Input

Water Licence Amendment

Burgundy submitted a Water Licence amendment application in 2022 to renew the licence and extend its term with the Agency actively participating in the review process. The main concerns raised by the Agency were: the proposed 10-year licence term; use of water from Exeter Lake to supplement the LLCF as a source of process plant water; allowable water withdrawal volumes and inspections and monitoring of the dams and dykes.

Point Lake Waste Rock Storage Area Design Plan and Seepage Prediction Report

The existing five Waste Rock Storage Areas (WRSA) at the Ekati mine are large permanent mine structures, and their design and management are very important. Before construction of the Point Lake Project could begin, a WRSA Design Plan must be approved by the WLWB. The Agency's major concerns with the submitted plan centered around the need for perpetual care of the WRSA and seepage management. Ultimately, the WLWB approved the Point Lake WRSA design plan and required Burgundy to address many of the concerns raised by the Agency and other reviewers.

Interim Closure and Reclamation Plan v3.1

The Interim Closure and Reclamation Plan (ICRP) is a critical document that describes how every mine component will eventually be closed and the closure criteria needed to ensure the mine is reclaimed safely and properly. Burgundy is working to have the third complete version of the ICRP approved following 25 years of mining operations. The Agency suggests that closure planning should be much further advanced than it currently is and continues to work with Burgundy and reviewers to expedite revision and updating of the ICRP.

Caribou Telemetry Analysis

The Caribou Telemetry Analysis being conducted by Burgundy was prompted by concerns over impacts the mine may be having on caribou movement and distribution. This research is intended to examine and determine whether mine infrastructure and activities are having a barrier effect on the Bathurst and Beverly-Ahiak caribou. The Agency reviewed and provided comments on the draft 2024 Barren-Ground Caribou Movement and Habitat Selection Analyses from Telemetry Data Report and participated in the April 2024 workshop. In addition, the Agency participated in 12 other document reviews over the past year, including:

- Plankton and Benthos Response Plan v3.1
- Back-flooding Plans for Pigeon and Fox Pits
- 2022 Environmental

Point Lake pit dewatering October 2024.

Agreement and Water Licence Annual Report

- 2022 Aquatic Effects Monitoring Program Annual Report
- 2022 Wildlife Effects Monitoring Program Annual Report
- Engagement Plan v5.0
- Ekati 3-year Seepage Report
- Waste Rock and Ore Management Plan v12.0
- Ekati's Waste Water and Processed Kimberlite Management Plan v10.0
- Ekati 2023 Caribou Camera Study
- Environmental Impact Report
- Point Lake Overburden Request to not collect seepage

Agency Communications

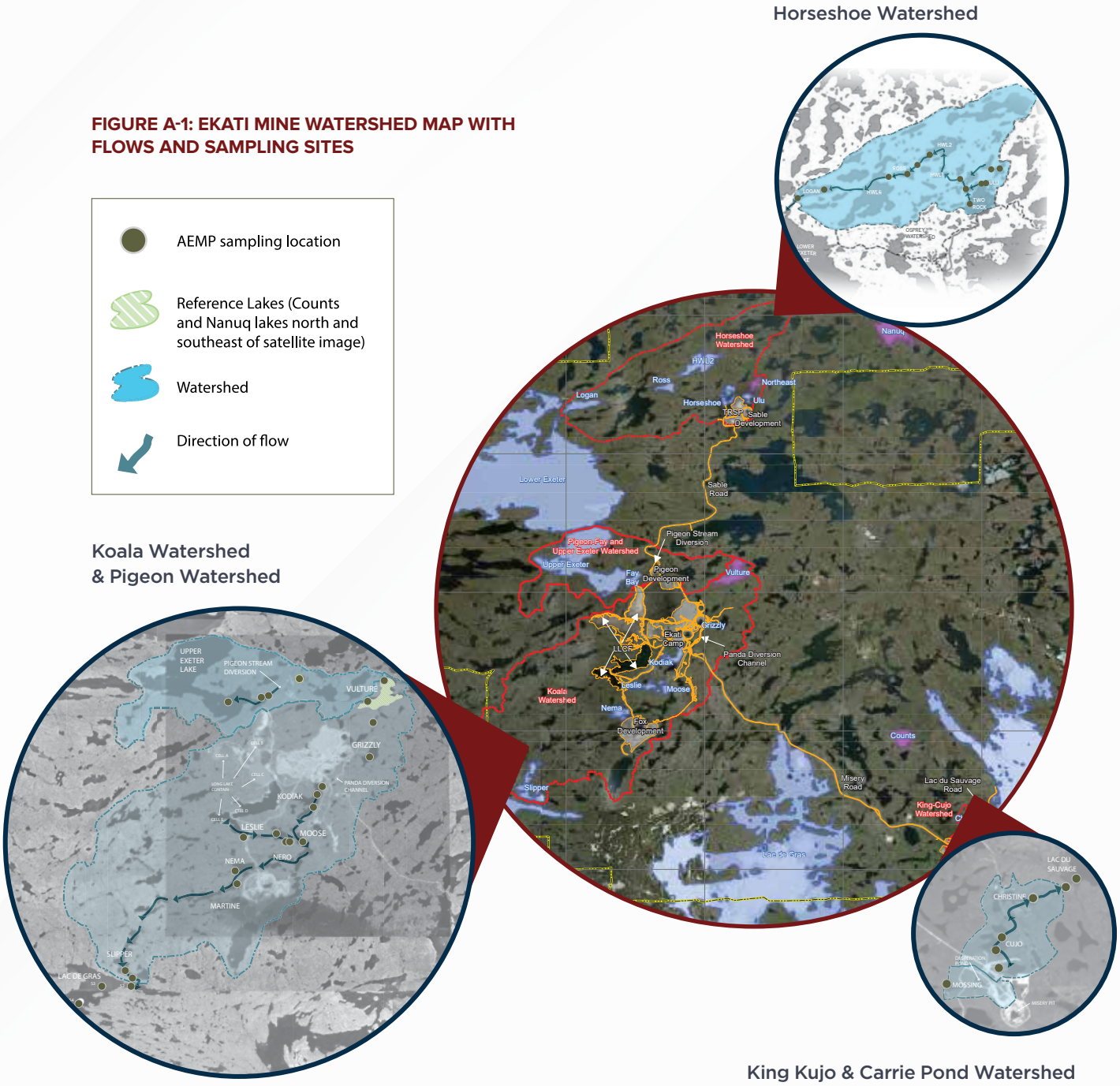
The Agency communicates with our Society Members and the public using various methods including this Annual Report, our website, and social media.

The Agency website is a resource that houses information for all things related to environmental management at the Ekati mine. Resources are added as they become available, and our latest news is easily accessible on our website homepage. The Agency is always looking for ways to make the website more accessible and up-to-date ensuring transparency in the work we do.

The Agency presence on social media includes a Facebook page and a Twitter account. Our followers on both platforms are slowly growing as we strive to increase our online presence.

APPENDIX A
TABLES AND FIGURES

FIGURE A-1: EKATI MINE WATERSHED MAP WITH FLOWS AND SAMPLING SITES



MINING EFFECTS ON WATER QUALITY FLOWING THROUGH THE KOALA AND KING-CUJO WATERSHEDS

Reading the table from left to right, water flows in the Koala watershed from Leslie Lake to Lac de Gras and in the King-Cujo watershed from Cujo Lake to Lac de Sauvage. The solid dot represents water quality variables that continue to increase over time in comparison to their reference sites.

	VARIABLES ELEVATED IN KOALA WATERSHED LONG LAKE CONTAINMENT FACILITY → LAC DE GRAS									VARIABLES ELEVATED IN KING-CUJO WATERSHED KING POND → LAC DU SAUVAGE			
→ Flow from effluent source to ultimate receiving lake in watershed ● Increased over time in comparison to reference lake/stream or different from a constant o Elevated but not changing through time ◆ Upper bound of 95% exceeded the SSWQO, water quality benchmark, or CCME guideline during ice-covered or open water season ★ Indicates observed mean exceeded the SSWQO, water quality benchmark or CCME guideline during ice-covered or open water season	LESLIE	LESLIE-MOOSE	MOOSE	MOOSE-NERO	NEMA	NEMA-MARTINE	SLIPPER	SLIPPER-LAC DE GRAS	LAC DE GRAS (S2)	CUJO	CUJO OUTFLOW	CHRISTINE-LAC DU SAVAGE	LAC DU SAUVAGE
PARAMETERS MONITORED													
pH	o	★	o	★	o	★	★	★	★			★	★
Alkalinity	o	o	o	o	o	o	o	o	o	o	o	o	
Hardness	o	o	o	o	o	o	o	o	o	o	o	o	o
Chloride	o	●	o	o	o	o	o	o	o	o	o	o	
Sulphate	o	o	o	o	o	o	o	o	o	o	o	o	o
Potassium	o	o	o	o	o	o	o	o	o	o	o	o	o
Total Ammonia	o	●	●		o		●		o	o	o		o
Nitrite	o	o	o	o		o	o						
Nitrate	o	o	o	o		o					o		
Total Phosphate-P		o	o	o						o	o	o	o
Total Organic Carbon	o	o	o	o	o	o				o			
Antimony	o	o	o	o	o	o	o	o					
Arsenic	o	o	o	o	o	●	●	o	o	o	o		
Barium	o	o	o	o	o	o	o	o		o	o	o	
Boron	o	o	o	o	o	o	o	o	o	o	o	o	
Molybdenum	o	o	o	o	o	o	o	o		o	o	o	
Nickel	o	o	o	o	o	o	o	o	o	o	o	o	
Selenium	o		o	o									
Strontium	o	o	o	o	o	o	o	o	o	o	o	o	o
Uranium	o	o	o	o	o	o	o	o		o	o		

MINING EFFECTS ON WATER QUALITY FLOWING THROUGH THE HORSESHOE WATERSHED

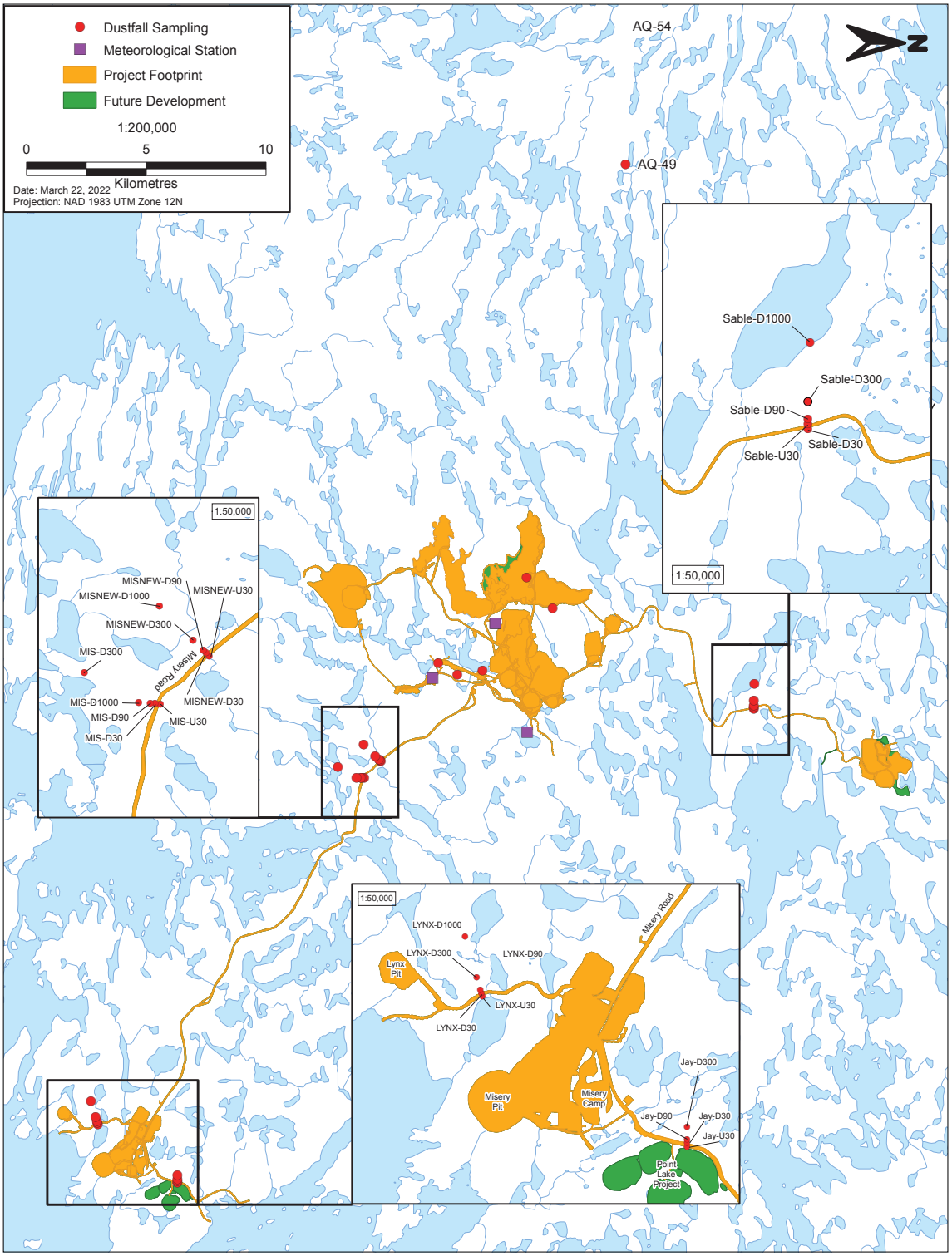
→	Flow from effluent source to ultimate receiving lake in watershed
●	Increased over time in comparison to reference lake/stream or different from a constant
o	Elevated but not changing through time
◆	Upper bound of 95% exceeded the SSWQO, water quality benchmark, or CCME guideline during ice-covered or open water season
★	Indicates observed mean exceeded the SSWQO, water quality benchmark or CCME guideline during ice-covered or open water season

VARIABLES ELEVATED IN HORSESHOE WATERSHED

LONG LAKE CONTAINMENT FACILITY → LAC DE GRAS

PARAMETERS MONITORED	HORSESHOE	HORSESHOE OVERFLOW	HWL2	HWL2 OVERFLOW	ROSS	ROSS OVERFLOW	LOGAN	LOGAN OVERFLOW	LOWER EXETER
pH	★	★	★	★	★	★	★	★	★
Alkalinity	●	●	o	o			o		o
Hardness	●	o		●	o	o	o	o	●
Chloride	o								
Sulphate	o	o		●			o		●
Potassium	●	●	o	●		o		o	●
Total Ammonia	●	●	●		o				
Nitrite		●							
Nitrate	●					●			
Total Phosphate-P				●					
Total Organic Carbon									
Antimony									
Arsenic	●	●	●	●					
Barium	o			●					
Boron									
Molybdenum	●	●							
Nickel	o	o		●		o			
Selenium									
Strontium	●	o		●	o	o			●
Uranium				●					

FIGURE A-2: MAP OF DUST SAMPLING LOCATIONS, PROVIDED BY BURGUNDY DIAMOND MINES



APPENDIX B
RESPONSES TO RECOMMENDATIONS

Burgundy Diamond Mine's Responses to Recommendations:

MANAGEMENT SYSTEMS

Agency Recommendation: Burgundy should ensure that up-to-date management systems and plans are in place to ensure ongoing and consistent compliance with their Water Licence and Land Use Permits and effective implementation of operational environmental requirements.

Burgundy Response: Burgundy is committed to continuous improvement in all areas of the operation and has examined these cases for opportunities to better internal management systems and processes to minimize the risk from operational activities in the future.

OLD CAMP

Agency Recommendation: Burgundy should undertake a study to investigate causes of water quality exceedances in Old Camp runoff. Design of the study should consider whether more frequent monitoring is needed to better understand the causes of exceedances. Burgundy should also design and implement measures to address minor landform stability issues at Old Camp, with the intent of developing a better understanding of approaches that can be used for other site closure and reclamation activities.

Burgundy Response: Although elevated concentrations of Dissolved Aluminum were detected in the Phase 1 Trench, it is important to note that the elevated concentrations were not evident downstream in the reclaimed channel. The Phase 1 Trench, a small collection pond within the Phase 1 North Pond, discharges directly through the reclaimed channel in the former Phase 1 South Pond, where Environmental Quality Criteria (EQC) for water quality has consistently been met.

During the discharge from the Phase 1 Trench in August 2022, water quality monitoring data confirmed that EQC requirements were met before and during the discharge. Exceedances of Dissolved Aluminum were recorded only after the discharge had occurred. Historical data analysis suggests that the exceedances of

Insulated pipe in disrepair and insulation blowing around by King Pond Settling Facility 2023.

Dissolved Aluminum are intermittent and may be attributed to natural runoff contributions. As per the Old Camp Reclamation Completion and Performance Assessment Report, Burgundy will evaluate the need for further adaptive management strategies based on the results of monitoring at the end of the current monitoring period (2021 – 2024) in 2025.

Additionally, Burgundy recognizes that the geotechnical inspections identified some erosion and localized instability. However, as cited above, the inspection report did not flag any immediate concerns or issues requiring urgent action. Also outlined in the Old Camp Reclamation Completion and Performance Assessment Report, at the end of the monitoring period in 2025, the necessity for preventative maintenance will be determined whereby localized instabilities will be addressed. This evaluation and results will be reported in the Annual Closure and Reclamation Progress Report.

GNWT – DEPARTMENT OF ENVIRONMENT AND CLIMATE CHANGE RESPONSES TO RECOMMENDATIONS:

CLOSURE LIABILITY – WASTEWATER

Agency Recommendation: The GNWT, in conjunction with the WLWB, should adjust the liability estimates and security bond requirements to account for closure costs associated with management of wastewater accumulated in pits that are used for storage of FPK.

GNWT ECC Response: GNWT-ECC regularly participates in reviews of existing and future liabilities at the Ekati Diamond Mine. As noted in your recommendation, the Wek'èezhìi Land and Water Board (The Board) would need to be involved and they would first need to agree that the security review process be reopened and that security for such costs is reasonable and appropriate to be included. This is because under legislation, the Board is responsible for setting security amounts for water licences. GNWT-ECC commits to assessing liabilities related to the entire site and all potential wastewater as part of future security review processes and will follow-up with the Board and/or the proponent on this item in particular, based on the Agency's request.

OPERATIONAL THRESHOLDS

Agency Recommendation: The GNWT should review its policies and internal practices related to the scope and scale of operational changes that inspectors can authorize under an existing Land Use Permit, including the adoption of operational thresholds that, if exceeded, would require a public review be undertaken.

GNWT-ECC response: The role of the inspector is to carry out resource management and environmental law enforcement activities. Inspectors ensure that activities related to the diamond mines are carried out in a manner consistent with applicable legislation and authorizations.

Operational changes to an approved project are not authorized by inspectors. Activities subject to the Mackenzie Valley Resource Management Act and the Waters Act are regulated by the Board and inquiries regarding public reviews should be directed to them.

The Sable Pit laydown expansion was reviewed by GNWT-ECC inspectors, and it was determined that the activity falls within the scope of the existing Land Use Permit issued by the Board. A public review was conducted prior to permit issuance and can be found on the WLWB public registry.

If a proposed change falls outside of the existing permit scope or approved management plans, the inspector will indicate to the proponent that a change or amendment should be sought through Board processes.

Two Rock Lake 'Sedimentation' Pond.

APPENDIX C
ACRONYMS AND GLOSSARY

Acronyms

AEMP = Aquatic Effects Monitoring Program

AQMP = Air Quality Monitoring Program

CKRSA = coarse kimberlite rejects storage area

DFO = Federal Department of Fisheries and Oceans

ECCC = Environment and Climate Change Canada

EQC = Effluent Quality Criteria

FAA = Fisheries Act Authorization

GNWT-ECC = Government of the Northwest Territories-Environment and Climate Change

GNWT-ENR = Government of the Northwest Territories-Environment and Natural Resources

ICRP = Interim Closure and Reclamation Plan

IEMA = Independent Environmental Monitoring Agency OR 'the Agency'

KPSF = King Pond Settling Facility

LLCF = Long Lake Containment Facility

MVRMA = Mackenzie Valley Resource Management Act

PLP = Point Lake Project

TK = Traditional Knowledge

TRSP = Two Rock Sedimentation Pond

WEMP = Wildlife Effects Monitoring Program

WLWB = Wek'èezhìi Land and Water Board

WMT = wet metric tonnes (of waste rock)

WRSA = Waste Rock Storage Area

Definitions

Acid [rock] drainage: Outflow of water that has become acidic due to exposure to exposed rock surfaces in waste rock piles, open pits and underground workings.

Action level: when the concentration of a substance exceeds a level defined in the Aquatic Response Framework, where the company must take precautionary action in order to reduce or remove the potential for impending harm.

Adaptive management: a management system with continual monitoring. If a mitigating action does not work, additional actions are used to keep the impacts within accepted levels or below thresholds.

Ambient air quality: the concentration of pollutant in the surrounding air.

Benchmark: a standard against which to compare or assess a monitored parameter.

Benthic macroinvertebrate: all life forms without bones living on lake and stream bottoms (i.e. clams, snails, crustaceans, insect larvae and worms).

Benthos: animals and plants that live at the bottom of a lake, wetland or stream.

Concentration: the amount of a substance in the defined space; the amount of different pollutants in the surrounding air.

Contingencies: methods to fix future events or situations that are possible but not certain.

Discharge: to allow wastewater to flow out or be pumped out from where it was held.

Dust suppression (or suppressants): actions that prevent or reduce the amount of dust spreading into the air.

Financial security: funds accessible by government to cover the total expected cost of closing and reclaiming a mine site if a proponent is unable or unwilling to complete the reclamation.

Fine processed kimberlite: very small particles (sand, silt, clay-sized) less than 0.5mm diameter, leftover as waste from the process to remove diamonds from the kimberlite ore.

Focal surveys: documenting observations of a single animal and the proportion of time it spends doing different behaviours, i.e., feeding, bedding, alert, etc.

Greenhouse gases: gases in the atmosphere that trap heat. They allow sunlight to pass through and warm the earth, but prevent the warmth from leaving. Most common GHGs are water vapour, carbon dioxide, methane, ozone, nitrous oxide and chlorofluorocarbons.

Incidental observations: records of observations of any wildlife by any persons and in all areas at the mine.

Knowledge holders: Indigenous people recognized within their own communities for their expertise and depth of knowledge and experience.

Landfarm: a place to treat contaminated soil.

Metasediment: a type of metamorphic rock-rock transformed by heat, pressure, other natural actions.

Meteorological: the science of weather and climate; the conditions of the atmosphere in an area.

Mitigation, mitigating: an action that is taken to reduce the negative impacts of a condition or situation. To make something less harmful. In this case, to make sure environmental impacts from the mine are as minimal as possible.

Monitoring: collecting and analyzing repeated observations and measurements to evaluate change and impacts of change. Watching habitat and wildlife, and 'keeping an eye' on things all the time.

Neutralize: to make something ineffective or harmless. In this case, to make an acid or alkaline substance chemically neutral.

Overburden: lake sediments, rock or soil covering a mineral deposit. It is removed to get to the ore or rock that contains the desired mineral(s).

Particulates/particulate matter: Very tiny bits of dust, smoke, and other harmful materials in the air. Some are big enough to see with your eyes; others are so small you need a microscope. Particulate matter is a mix of solid and liquid particles.

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

Reclamation: the process of returning areas of land and water-disturbed by mining operations-to conditions that are consistent with closure objectives.

Seepage: the slow escape of liquid or gas through a porous material or small holes. In this case, liquids escaping from waste rock piles that may contain contaminants.

Slurry: fine processed kimberlite mixed with water.

Surface minewater: water that is pumped or flows from open pits, underground workings or other mine areas.

Systematic surveys: surveys conducted by the Ekati Environment Department using specific methods and covering an established area, such as all main roads and the Misery power line.

Threshold: a defined point, level or condition where, if things change beyond that point, further change can cause lasting harm.

Till: a coarse collection of clay, sand, gravel and boulders mixed together and deposited by glaciers.

Traditional knowledge; Indigenous knowledge: The entire, interconnected knowledge system of a group of indigenous people: spirituality, values and beliefs, environmental knowledge, transmission of knowledge and the codes of practice.

Wastewater: water that has been affected by mining processes, activities or wastes.

Zone of influence (ZOI): is the area around a development where caribou distribution and abundance are less than what would be expected based on the habitat alone.

Zooplankton: 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 fish.

Trucked water transfer from Point Lake.

King Pond Settling Facility and Misery Camp in background 2024.

BOARD OF DIRECTORS

Emery Paquin | Chairperson

Appointed jointly by the Government of the NWT, the Government of Canada, and Arctic Canadian in 2015.

Emery Paquin (Chairperson) was appointed jointly by the Government of the NWT, the Government of Canada, and Arctic Canadian in 2015.

Emery is an independent environmental consultant living in Yellowknife. He has more than 40 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 prior to being appointed to the Monitoring Agency.

Ronald Allen | Vice-Chairperson

Appointed jointly by the Government of the NWT, the Government of Canada, and Arctic Canadian in 2017

Ron has been living and working in a variety of Arctic communities since the 1970's, and has worked with community groups and organizations on local cultural values, concerns and aspirations related to renewable resources. Ron moved to the NWT as a Renewable Resources Officer and transferred to Fisheries and Oceans Canada in the 1980's 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.

Kim Poole | Secretary/Treasurer

Appointed by the Governments of Canada and NWT, and BHP Billiton in 2006, and was reappointed by the Tłı̨chǫ Government in 2015

Kim is an independent wildlife biologist with over 40 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.

Tim Byers

Appointed by Akaitcho Treaty 8 First Nations (YKDFN and LKDFN) in 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.

Jesse Jasper

Appointed jointly by the Government of the NWT, the Government of Canada, and Arctic Canadian in 2016

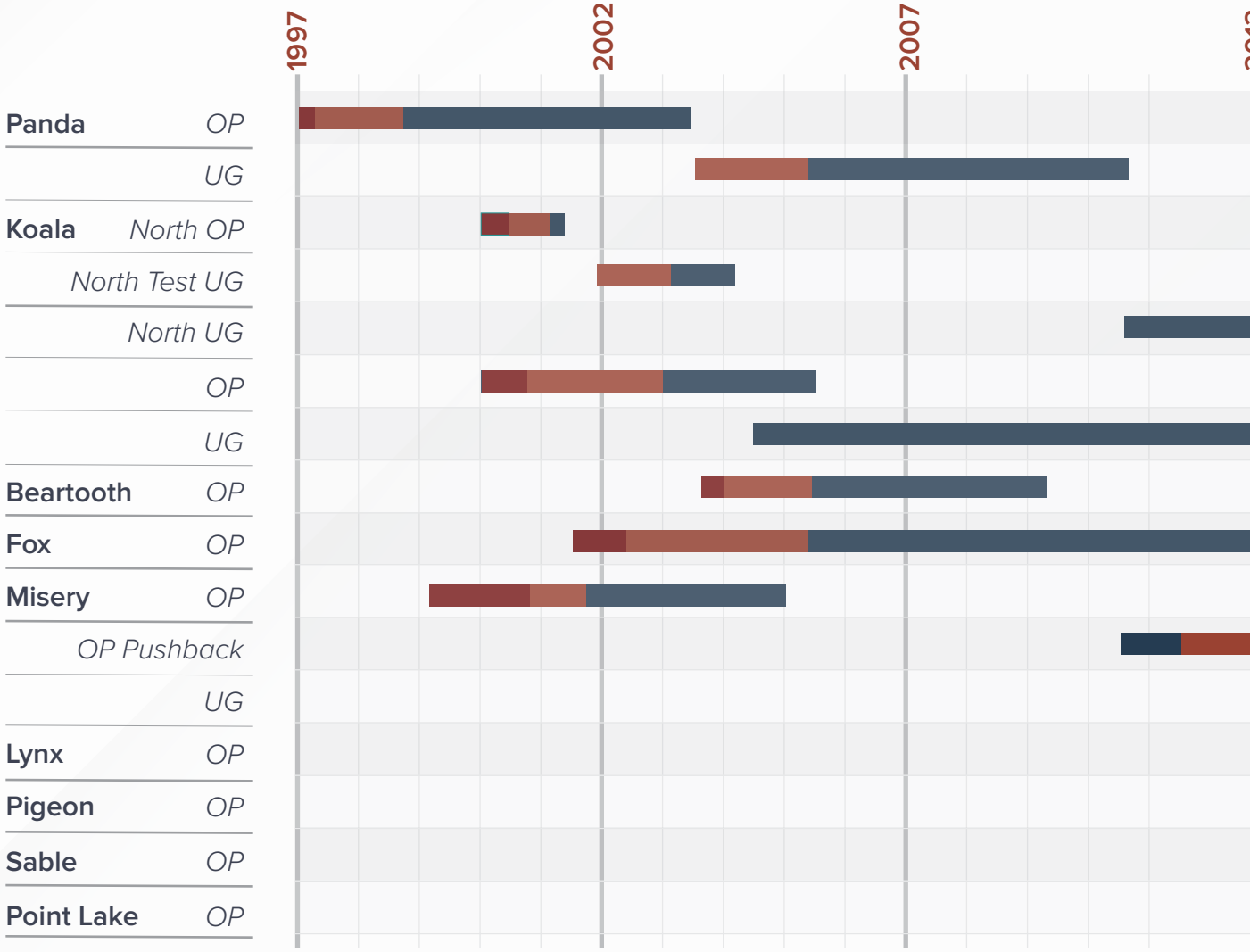
He retired from the federal government in 2011 after 39 years with Indigenous and Northern Affairs Canada and Environment Canada. He has worked in northern Canada since 1972, focusing on a variety of water monitoring and environmental studies to support the design and evaluation of northern development projects, and the characterization and monitoring of environmental conditions. He contributed to and coordinated a number of major project reviews, technical presentations to northern environmental assessment panels, and follow-up licencing of northern development projects by the NWT Water Board. This included Norman Wells Oilfield Expansion and the NWT Diamond Project (now the Ekati Diamond Mine). Jesse ended his career with a two year term as Executive Director of the Mackenzie River Basin Board.

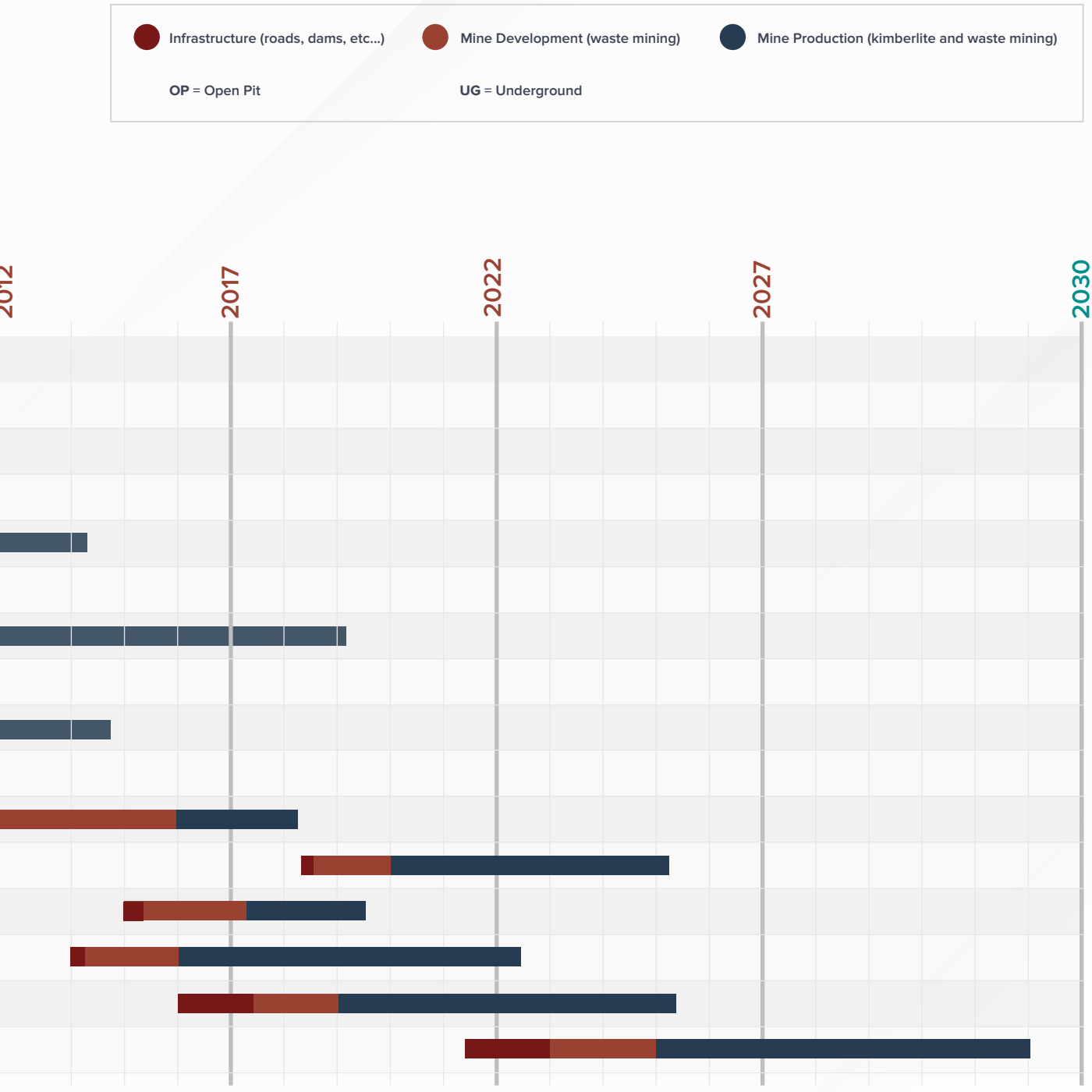
Bill Slater

Appointed by the North Slave Métis Alliance in 2018

Bill 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.

LIFE OF MINE PLAN




Infrastructure (roads, dams, etc...)
Mine Development (waste mining)
Mine Production (kimberlite and waste mining)
OP = Open Pit
UG = Underground
2012
2017
2022
2027
2030

Independent Enviromental Monitoring Agency

P.O. Box 1192, 5006 Franklin Avenue Yellowknife, NT X1A 2N8
Email: monitor1@monitoringagency.net
Phone: (867) 669-9141 | Fax: (867) 669-9145
monitoringagency.net

Independent
Environmental
Monitoring Agency
PUBLIC WATCHDOG OF EKATI DIAMOND MINE