

# MINING NORTH

## NECHALACHO

CRITICAL – AND  
CRITICALLY IMPORTANT –  
MINERALS IN CANADA'S NORTH

### NEW TECH AND NEW THINKING

CHANGES IN EXPLORATION,  
MINING, & CLEAN-UP

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# MINING NORTH

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# NECHALACHO CRITICAL – AND CRITICALLY IMPORTANT – MINERALS IN CANADA'S NORTH

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It's not your father's, or grandfather's, mining industry anymore. Today's mining and exploration projects use hi-tech and innovative thinking to solve problems

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Canadian gold miner Agnico Eagle, world's 3<sup>rd</sup> largest producer, scores a golden hat trick with the Hope Bay Mine purchase

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# Exploration and Mining are “Critically” Important to Canada’s North

Welcome to **Mining North 2022**, our **NWT & Nunavut Chamber of Mines’** annual magazine.

► By Tom Hoefer, Executive Director NWT & Nunavut Chamber of Mines

*Our last printed issue was in the Fall of 2019 — pre-Covid pandemic — which brought many changes to the North and Canada, some continuing to have impacts now. It’s not an overstatement to say that a lot of water has flowed under the bridge since then.*

That became clear to me while updating the Chamber Members’ Activity Map which shows where in the North our members are exploring and mining. There are long term anchor projects but also new companies and projects in both territories — extremely good news, given the hit our industry took during the COVID pandemic.

This new interest is to be expected given that the NWT and Nunavut cover nearly one third of Canada. Both territories host top tier geology and untapped, diverse mineral potential that includes critical minerals. The Canadian government has listed several uses for critical minerals, including as essential inputs for renewable energy and clean technology applications, such as advanced batteries, permanent magnets, solar panels, wind turbines, and small modular reactors; advanced manufacturing applications, including defense and security technologies; semiconductors

and consumer electronics, and critical infrastructure.

Further, western governments are looking to secure their critical mineral supply against China’s dominance in the global minerals market. The Canadian government has recognized critical minerals with its unprecedented eight-year, \$3.8 billion budget and will soon release our country’s first Critical Minerals Strategy. It’s an excellent step in the right direction, one that we hope gets enhanced with follow-up funding in the next federal budget.

Appropriately, our cover story is on Northern critical minerals, starting with NWT’s Nechalacho project, Canada’s first rare earth element mine. It’s a must read — the owners have hired an NWT Indigenous company to mine the ore, and they are using innovative X-ray sorting technology that removes the need for processing water and tailings ponds.

This issue has news on other critical mineral projects, old and new, and there are updates on our “critically important minerals” such as diamonds, gold, and iron — all key contributors to the economies in both NWT and Nunavut. Agnico Eagle’s “hat trick” gold mines and the Mary River iron mine together likely contribute half of Nunavut’s economy. Similarly, diamonds are very important to the NWT, and Ekati is looking at innovative ways to extend that mine’s operating life (page 26). As well, the advanced projects of both Gold Terra (page 7) and Nighthawk Gold (page 30) mean gold mining could soon contribute to the NWT economy again.

And finally, our Members Service Directory in this issue lists all your fellow members who are supporting our efforts to keep northern mineral development strong, vibrant, and beneficial.

*Happy Reading!* **MN**

## Your Northern Legal Experts

*Willms & Shier Environmental Lawyers LLP* provides expert legal advice on environmental, Indigenous legal issues, energy and resource development matters in Canada's Northern Territories.



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## BAFFINLAND GETS MINISTER'S APPROVAL FOR TEMPORARY PRODUCTION INCREASE



BAFFINLAND IRON MINES

Baffinland's loading port at Milne Inlet, on the northeast coast of Baffin Island.

Northern Affairs Canada Minister Daniel Vandal has approved the Nunavut Impact Review Board's recommendation to allow a temporary production increase at Baffinland Iron Mines' Mary River operation. The increase, from 4.2 million tonnes/year to 6 million tonnes/year, is in effect until the end of 2022.

Baffinland had a 2018 permit to produce 6 million tonnes/year, but it expired in December 2021 causing the production limit to revert to 4.2 million tonnes.

The October 4, 2022 approval, comes with terms and conditions agreed to by both Baffinland and Qikiqtani Inuit Association. They include developing criteria for the start and closing of each shipping season, an issue which set off a mine blockade by hunters and trappers in February 2021. That ended when Baffinland agreed to not break ice in the spring. Other issues include setting access routes for hunters, monitoring impacts from dust and setting up a program for dust dispersion, and increased resourcing for the working groups monitoring terrestrial and marine impacts. Further, an independent monitor

will be appointed to oversee Baffinland's fulfillment of the commitments.

Prior to NIRB's decision, Baffinland said that it would reach the annual production limit of 4.2 M T in September and so would be forced to let the mine's 1100-strong go. The company contributes about 23 percent of Nunavut's GDP and employs approximately 2500 workers, including Inuit, unionized workers and contractors at the Mary River and the Milne Inlet port.

Baffinland has an outstanding application to increase production to 12 million tonnes/year. After four years of consideration, NIRB rejected the application in May 2022. The Northern Affairs minister has yet to release a decision on NIRB's ruling. **MN**

## SABINA GOLD & SILVER READY TO START CONSTRUCTION OF THE GOOSE MINE

Sabina Gold & Silver announced construction will start in 2023 at the Goose Mine, part of its 100 percent-owned, advanced high grade Back River Gold District, about 400 km south of Cambridge Bay. The \$610 million project is fully funded. In preparation, Sabina has purchased major equipment, some of which is already delivered or in transit, and completed some pre-development engineering and civil work. First gold is expected in 2025.

Bruce McLeod, President, and CEO, was clear about the

importance of the construction start. "This is a milestone decision for the company," he said. "We are fortunate that our strategy of pre-planning and accelerating procurement efforts has reduced our exposure to inflationary impacts and supply chain issues, and we are sufficiently funded for construction."

Sabina has been busy with other important project-related matters. The company is focussed on employment and opportunities for its Inuit stakeholders, signing a 20-year renewable land use agreement with the Kitikmeot

Inuit Association that commits to sustainability initiatives.

On another front, Sabina has applied to the Nunavut Impact Review Board for approval to build a renewable energy facility at its project site. Named the Back River Alternate Energy Centre, it will include as many as 13, 4.5 MW capacity wind turbines, a 5 MW solar panel array and a 50 MWh capacity battery storage system. This is expected to reduce project greenhouse gas emissions including those from the mine and winter road truck traffic. **MN**

## VERY LARGE DIAMOND BOOSTS GAHCHO KUÉ MINE'S REPUTATION FOR QUALITY AND SIZE



MOUNTAIN PROVINCE DIAMONDS

Mountain Province Diamonds describes this stone as a “151.6 carat, colored, octahedron of exceptional clarity.”

On August 22, 2022 Mountain Province Diamonds Inc. announced that a very large, lemon-coloured diamond would be sold at auction in Antwerp, Netherlands, in September, along with more than 90 other

exceptional quality stones, all recovered from the Gahcho Kué mine.

The diamond is a “151.6 carat, colored, octahedron of exceptional clarity”, as Mountain province describes it, and entrenches the mine’s reputation as a source of large, exceptional gem-quality diamonds.

Reid Mackie, the company’s Vice President, Diamond Marketing said the diamond was an example of Gahcho Kué Mine’s ability to consistently recover exceptionally large-sized and high-quality diamonds. “These gems are highly coveted by collectors

around the globe not only for their beauty but increasingly, for their Canadian origin.”

This is the second largest diamond recovered at Gahcho Kué since the start of production in 2016. The largest, named the Polaris, was 157.4 carats, and shone deep blue under UV light. It was sold at auction in early 2021. Other notable stones include a 60.59-carat yellow diamond and a 95.21 carat clear diamond.

Gahcho Kué is located 300 km east-northeast of Yellowknife and 230 kilometers south of the Arctic Circle. Mountain Province is exploring for diamonds at Kennady Lake, 10 km from the Gahcho Kué mine. **MN**

## GOLD TERRA FILES TECHNICAL REPORT 43-101 ESTIMATE ON THE CON MINE OPTION



GOLD TERRA RESOURCE CORP.

Gold Terra drill crew at work on a summer night.

Gold Terra Resource Corp. filed a technical report NI 43-101 Mineral Resource Estimate for exploration done on the Con Mine Option property, optioned from Newmont Gold. The report shows three gold deposits – the Yellorex Main, Yellorex North

and Kam Point – containing an underground indicated mineral resource of 0.45 million tonnes averaging 7.55 g/t for 109,000 ounces of contained gold, and an underground inferred mineral estimate of 2.0 million tonnes averaging 6.74 g/t for 432,000 ounces of contained gold.

The company’s agreement with Newmont requires delineating a potential 1.5 million ounces of gold on the property, so Gold Terra is on track to satisfy those terms. Gold Terra drilled 41 exploratory holes for a total of 21,019 metres along the historically prolific Campbell shear zone, from which Con Mine produced more than 5 million ounces of gold.

Since 2013, Gold Terra has extensively explored the Yellowknife greenstone belt, host to both the Giant and Con mines, and gradually assembled more than 800 sq. km. of contiguous land around Yellowknife. Now called the Yellowknife City Gold Project, it is adjacent to the Con and Giant properties. The company says, “Gold Terra is on track to re-establishing Yellowknife as one of the premier gold mining districts in Canada.”

Gold Terra plans a 2023 winter drilling program to test all zones in the mineral resource estimate at depth and along strike and, depending on budget room, will test the Campbell shear down to 2000 metres. **MN**

Jeremy Catholique, a shift supervisor and TOMRA sorter operator from Lutsel'ke, looks over bags of rare earth concentrate at the Nechalacho Mine.



CHEETAH RESOURCES /  
BILLBRADENPHOTO

# NECHALACHO

## CRITICAL – AND CRITICALLY IMPORTANT MINERALS IN CANADA'S NORTH

► By Bill Braden ◀

*Nechalacho, Canada's first rare earth minerals mine positions the country to make bold steps into the surging market for critical minerals*

In the compact control deck in the TOMRA sensor-based sorter at the Nechalacho rare earth mine, Jeremy Catholique monitors a dusty black-and-white computer screen. He's tracking the flow of marble-sized pebbles of high-grade ore as a conveyor belt carries it under the TOMRA's X-ray detection system.

"Those X-rays pick out the red bastnaesite rocks from white quartz country rock," he shouts over the rumble of the German-built machine. "As the ore falls off the conveyor, the X-ray sends a signal to a row of powerful air jets that blast the red ore over to the bagging conveyor. The quartz is left to fall over to the waste rock conveyor. It's pretty cool!" grins Catholique.





CHEETAH RESOURCES / BILLBRADENPHOTO

Yellowknives Dene Chief Ed Sangris speaking at the unveiling of two rare earth processing plants in Saskatoon, September 2022

The Lutsel K'e First Nation Dene is a shift boss at Nechalacho, one of several Indigenous operators trained to run the sorter, contained in a 10-metre seacan perched on metal stilts at the edge of Nechalacho's North T deposit, Canada's first rare earth mine.

Catholique is well aware that what he and his team are doing out on the Precambrian Shield 110 kilometres southeast of Yellowknife is one link in a global supply chain for a host of metals deemed essential to an exponentially growing demand.

Every time we pick up a cell phone, browse a computer screen or drive a car, we're using technology that wouldn't be possible without minerals known as rare earth elements (REE). They're a cluster of 15 elements, on the bottom left corner of the periodic table, many of them unknown until the 19<sup>th</sup> century. If they intrigued scientists with their unusual atomic and electrical properties, industry at that time had little use for stuff with names like promethium, dysprosium and neodymium.

But by the mid 20<sup>th</sup> century, space-age technology found REEs helped make tougher, lighter metals for rocket ships. Electronics engineers discovered that even a pinch of some REEs made a big difference in the speed and miniaturization of their gadgets, and in the vividness of colours on a display screen. Above all, it's the explosive demand for permanent magnets that's vaulted REEs into industrial and political prominence. Why? Certain REEs make the smaller, super powerful, permanent magnets that are enabling the global demand for electric vehicles (EVs – each needing about two kilograms of REE magnets) to evolve fivefold to a forecasted 125 million units a year by 2030.

But the REE mineral family is not the only game changer in the digital and green world of the future.

It is just one of 31 minerals deemed "critical" by the Government of Canada to advance and sustain Canada's entire manufacturing sector, an economy worth \$174 billion

## CANADA'S CRITICAL MINERALS

Natural Resources Canada (NR Can) defines critical minerals as those that are essential to Canada's economic security, are required for Canada's transition to a low-carbon economy and are a sustainable source of critical minerals for Canada and our allies.

There are **31 critical minerals** on NRCan's list, as defined above. Of these, 22 have been found, many in significant deposits in both NWT and Nunavut. Rare earth elements are currently being mined at Nechalacho, and there are three other advanced critical mineral projects in NWT – NICO (bismuth, cobalt), Pine Point (zinc, lead) and Prairie Creek (zinc, lead, silver).

- Aluminum
- Antimony
- Bismuth (NICO)
- Cesium (Nechalacho)
- Chromium
- Cobalt (NICO)
- Copper (Coates Lake/Redstone; various locations)
- Fluorspar (Nechalacho)
- Germanium (Nechalacho)
- Helium
- Indium (Nechalacho; by-product of zinc mining)
- Lithium (Nechalacho, Hidden Lake)
- Magnesium
- Manganese
- Molybdenum (Various locations)
- Nickel (Nickel King in NWT, and Ferguson Lake in NU)
- Niobium (Nechalacho, Destaffany)
- Platinum Group Metals
- Rare Earth Elements (Nechalacho)
- Scandium (Nechalacho)
- Tantalum (Nechalacho, Destaffany)
- Tellurium (Nechalacho)
- Titanium
- Tungsten (Cantung, Mactung)
- Uranium (Kiggavik, Lac-50)
- Vanadium
- Zinc (Pine Point, Prairie Creek, Selwyn, Seal)

of GDP in 2021. “Economies that quickly secure a position in shifting supply chains will be well situated for long-term economic growth and prosperity,” according to the Natural Resources Canada (NRCan) website.

That list profiles several exotic sounding elements such as cesium and tantalum but also includes Canada’s long-time mineral champions like aluminum, copper, nickel and uranium, all earmarked as essential for the new economies. It’s more than rare earths; batteries need far more nickel,

lithium and cobalt than the world now produces, and casts even more urgency on the need for new, responsibly produced sources.

“Canada is leveraging its resources, mining and innovation ecosystems, and global leadership to position Canada as the supplier of choice for global markets,” says NRCan, “to implement the Canadian Minerals and Metals Plan, develop a critical minerals strategy, and lead a whole-of-government approach to strengthen domestic critical mineral value chains.”

The goals are to advance the competitiveness of Canada’s minerals and metals sector and create new economic opportunities. Indeed, the opportunities are huge: the International Energy Agency claims the market for green energy metals will grow almost seven times by 2030.

An added urgency to the quest for expanding domestic supply is China’s overwhelming dominance in the mineral supply chain. Decades of lax environmental and labour standards have enabled China to undercut virtually all competitors; it has even ‘weaponized’ its hold as leverage in international trade disputes. European and North American economies are acutely less tolerant of China’s belligerence and are rushing to establish their own capacity to mine and process critical metals.

It led Canada and the United States to link arms with their January 2020 Joint Action Plan on Critical Minerals collaboration. “Both of our economies are better off when we work together,” said Canada’s Minister for Natural Resources, Seamus O’Regan.



## Gahcho Kué Mine receives Award of Excellence for Community Engagement

Gahcho Kué Mine is proud to receive the 2022 Towards Sustainable Mining Award of Excellence for Community Engagement from the Mining Association of Canada.

The award recognizes the collaborative relationship between the mine and Ni Hadi Xa, the environmental monitoring organization representing six Indigenous nations close to the mine.

This partnership exemplifies our commitment to act with openness, honesty and integrity with our host communities, with respect for the land, air, water and wildlife.



DE BEERS GROUP







While the territory has a cloudy reputation for its cumbersome regulatory framework, lack of transportation and energy infrastructure and unresolved land claims covering much of the southern NWT, the territorial government is working on several legislative and investment fronts.

It is modernizing policy and regulations for a new Mineral Resources Act and a Public Lands Act. The Tlicho Highway, completed late in 2021, opened a new corridor into a resource-rich corner of the North Slave region. The Taltson Hydro system has capacity to become an energy grid connecting North Slave communities and projects including Nechalacho and Pine Point.

Nunavut's challenges dwarf even the NWT's, with exploration costs six times that of southern Canada, its complete reliance on diesel power, no roads and very little other infrastructure. But there is a serious study to build a corridor north through the NWT Slave Geological Province to the Arctic Ocean, while a proposed road/fibre optic/hydro-power transmission line from Manitoba could accelerate the Kivalliq region's potential for resource development.

Mining developers, governments and Indigenous leaders in both territories are showing real leadership in the often-contentious field of engagement with Canada's Indigenous people. It isn't perfect, but Northern models of collaboration and the land

claim-based environmental assessment and regulatory process are eyed internationally as the standard to strive for.

"The NWT model, with resource royalty sharing, socio-economic and benefits agreements, regulatory co-management and collaborative legislation, is at the forefront of Indigenous participation in mining, exploration and development in Canada – and likely globally," states a recent NWT government publication, *Unlocking Our Potential*.

The federal government is backing the push for more Canadian critical mineral capacity with action on several fronts, including an impressive \$3.8 billion over eight years to implement the country's first Critical Minerals Strategy\*\*\*.



**Above:** The TOMRA ore sorter at Nechalacho, which uses X-rays and puffs of air to separate the ore from the quartz.

**Top Right Inset:** TOMRA Sorter separates red bastnaesite ore from country quartz rock.

CHEETAH RESOURCES / BILL BRADEN PHOTO

CHEETAH RESOURCES / BILL BRADEN PHOTO

# THREE ADVANCED CRITICAL MINERALS PROJECTS IN NWT

**NORZINC** is gearing up to construct the 180 km Pioneer Winter Road (PWR) to the Prairie Creek zinc-silver-lead mine, after getting permit approvals in October 2022. The company still needs a permit from Parks Canada as most of the road goes through the Nahanni National Park Reserve.

NorZinc's President and Chief Executive Officer Rohan Hazelton said the winter road is Phase 1 of the all-season access road, approved in 2019. "We are very pleased to receive these approvals from the GNWT and the MVLWB allowing us to start access road construction on territorial lands," he said.

In 2022, NorZinc signed environmental agreements with the Naha Dene Band and the Łı́ı́ı́ı́ Kúé First Nation for the Prairie Creek Mine and the all-season road, both of which are on their respective traditional territories. NorZinc also signed a transportation corridor benefits agreement with Acho Dene Koe First Nation for trucking of concentrate through its traditional territory in NWT and British Columbia.

NorZinc's 2021 preliminary economic assessment estimated a pre-production capital cost of US\$368 million and estimated production costs of US\$167.50 per tonne of milled ore. Expected production was estimated at 118,400 tonnes of zinc equivalent per year, including 2.6 million oz. of silver from 2,400 tonnes per day of ore.

**FORTUNE MINERALS LTD.** found the NICO project's cobalt-gold-bismuth-copper deposit in 1996 and has doggedly been advancing the project since. Located within reach of the new Tłı́chq Road to Whati in the North Slave Region and power from the nearby Snare hydro system, NICO's potential lies in its cobalt reserves urgently needed for EV batteries, energy storage and portable electronics. It also hosts 10 percent of the world's bismuth, with gold and copper production backing up the critical minerals assets.

Surface and underground mining and concentrating ore on site, and shipping to a proposed refinery in Alberta are projected to yield an average of 1,800 metric tons of battery-grade cobalt sulfate; 1,700 metric tons of bismuth; 300 metric tons of copper; and 47,000 oz of gold annually over the first 14 years of mining.

Fortune also has a full deck of water and land use approvals and has invested in community engagement with the Tłı́chq First Nation. "Fortune continues to pursue off-take agreements and financing solutions with the objective of commencing construction activities as soon as project financing is secured," says its website. A capital cost estimate of \$589 million was disclosed in a July 2022, presentation. <https://www.fortuneminerals.com/Home/default.aspx>

**PINE POINT MINING LTD.**, owned by Osisko Metals Inc., plans to revive the former Cominco-owned lead-zinc Pine Point Mine near Hay River. From 1965 to 1988, it shipped 10.8 million tonnes of concentrates via rail, and hosted a thriving community of 2,000 mine workers and their families on the mine site that was demolished when the mine shut down. The site still benefits from excellent existing road and hydro access.

Osisko has been exploring some 47 known surface and nine underground deposits on its 47,000 hectare lease. A 2022 preliminary economic assessment projected pre-production start-up expenses of \$653 million, and 46.9 million tonnes of total mineral resources mined over 12 years. Osisko reports an indicated mineral resource of 15.8 million tonnes grading 4.17% zinc and 1.53% lead, and an inferred resource of 47.2 million tonnes grading 4.43% zinc and 1.68% lead.

"The realized Project would have a significant impact in the Northwest Territories," says Osisko's website, "with the potential of generating over \$804 million in combined federal and territorial tax revenue and contributing approximately 456 well remunerated jobs during the production phase and approximately 395 jobs during the construction period." Gross revenues after royalties are forecasted at \$5.6 billion. Results from the 2022 drill program will be added to a future feasibility study. No timeline for green-lighting the project has been disclosed. <https://osiskometals.com/>

## CRITICAL MINERALS PROJECTS IN NUNAVUT

Interest in uranium as a long-term source of low-GHG emissions energy is increasing, while new technology has greatly reduced reactors' size and improved their efficiency and safety profile. The Thelon basin has proven deposits, and new exploration is underway:

**NUNAVUT URANIUM** – Forum Energy Metals Corp. acquired significant uranium mineralization from Cameco 100 km west of Baker Lake in the Thelon Basin. In 2022 Forum prepared for a 2023 drill program, including gravity surveys.

**KIGGAVIK** – Orano / Denison Mines. Uranium mine proposed west of Baker Lake was not approved to proceed in 2015 by

regulators and federal government due to lack of a start date.

**ANGILAK** – ValOre Metals Corp. hosts the high-grade Lac 50 uranium deposit, the highest-grade uranium resource outside of Canada's Athabasca Basin. 2022 exploration drilling program in 2022.

**NUNAVUT HAS SEVERAL DEPOSITS OF OTHER CRITICAL MINERALS SUCH AS:**

**FERGUSON LAKE** – Canadian North Resources. Contains nickel, copper, cobalt, palladium, and platinum. 2022 drilling program on the main mineralized horizon.

**IZOK CORRIDOR PROJECT** – MMG Limited holds the High Lake copper, zinc, silver and gold project, 260 km E of Kugluktuk, and the Izok Lake high-grade zinc, copper, lead, and silver project, 225 km SE of Kugluktuk.

**STORM COPPER AND SEAL ZINC** – Aston Bay /American West. Storm is high-grade, near-surface sediment copper and Seal is a Polaris-style zinc and silver deposit.

**STRATEGX ELEMENTS CORP.** has three projects on Melville Peninsula: Project Mel and Project Nagvaak for energy transition metals, and Project Tasijuaq, a magmatic nickel -copper -cobalt deposit.

The exploration sector also got a welcome boost with a new 30 percent Critical Mineral Exploration Tax Credit.

Along with international trade commitments with the United States, the European Union and Japan, Canada is aggressively

promoting provincial and territorial buy-in to accelerate development. It established the Critical Minerals Centre of Excellence within NRCan to lead governments at all levels, along with industry, in coordinating joint policy and programs and is investing \$47.7 million

to support pilot projects and research and development in building supply chains.

Closer to home, the Canadian Northern Economic Development Agency (CanNor) in 2021 supported Vital Metal's Nechalacho Project with a \$1.26 million repayable loan toward its TOMRA sensor-based sorter. In 2022, a \$5 million loan through the Prairies Canada investment agency will help fund operations and commissioning of Vital's Saskatoon processing facility.

At an event in September of this year to unveil two rare earth processing plants in Saskatoon, Yellowknives Dene Chief Ed Sangris lauded the work of Vital Metals to bring his First Nation into the Nechalacho project. Vital's mine is the first in Canada to engage a First Nations-owned business to conduct the mining and crushing work on its own traditional lands.

"We have looked at Nechalacho with great interest and excitement," Sangris told some 200 leaders in the rare earth sector. "Our partnership has been respectful that our communities benefited from new jobs and training for our future growth and equity in this world-class mineral opportunity."

Sangris's comments reflect what recent resource-sponsored surveys are showing: an uptick in support among Indigenous communities for resource development. A 2022 national survey by the Mining Association of Canada (MAC)\* tracked people's favourable impression of mining companies from 68 percent in 2016, to 73 percent in 2022. MAC also says more than 80 percent of Canadians support mining activity and 83 percent want to

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see more mining in Canada. The Indigenous Resource Network\*\* found that 65 percent of First Nations, Métis and Inuit people in Canada say they support resource development.

“The majority of people, Indigenous and non, want the same thing: to see environmentally responsible projects that have the consent and involvement of the communities most affected go ahead,” says the Network’s website.

The support and engagement of impacted communities is an important checkmark that more and more major buyers of any resource want to see from their suppliers. It’s folded into the global trend to build standards for ESG-I content – Environment, Social, Governance and Indigenous – into their core corporate values. One of the cornerstones is environmental impact.

“Customers of critical minerals that enable the green economy demand the mines have carbon-free energy,” says David Connelly, Vice President of Strategy and Corporate Affairs for Vital Metals Ltd., owner of Nechalacho project. “The Tardiff expansion will need hydropower. The Taltson transmission line needs industrial customers to help finance it. There is an opportunity for Indigenous groups to be owners of the transmission line to enable the development of critical minerals for the green economy on their traditional lands.”

The potential for critical minerals to lift and diversify the NWT’s economy is very real. As industry, governments and markets build the links that will help realize the potential, the words of Yellowknives Chief

Sangris underscore that critical relationships are as important as the minerals themselves.

“The ores that lie underneath will be processed into the technology of tomorrow. The wealth of First Nations people will be used to drive Canada and the world into a cleaner

and greener future that will protect our families for generations to come.” **MN**

\* <https://mining.ca/public-opinion-polling/>

\*\* <https://www.canadaaction.ca/poll-most-indigenous-peoples-support-resource-development>

\*\*\* <https://www.bdo.ca/en-ca/insights/industries/natural-resources/federal-budget-implications-for-the-mining-sector/>



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Government of  
Northwest Territories

## MEET THE CLIENT SERVICE & COMMUNITY RELATIONS TEAM

**MARK PADDEY • ANGELA BALSILLIE • KARLENE GORDON • MIKE BYRNE • NORMA HARRIS**

The Client Service and Community Relations (CSCR) unit was established on April 1, 2014, to serve as the consistent first point of contact within GNWT to help industry and communities maximize economic opportunities from resource exploration and development. The CSCR unit provides experienced guidance to internal and external clients on regulatory and community engagement practices, making “the right” connections for clients. As the recognized and trusted provider of project facilitation and pathfinder services in GNWT, the CSCR is respected as a collaborative partner that works effectively with GNWT departments as well as Indigenous governments, industry, business, communities, non-government organizations and other public government agencies to support the socio-economic well-being of the NWT.

GOVERNMENT OF THE NORTHWEST TERRITORIES, 4<sup>TH</sup> FLOOR  
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CHEETAH RESOURCES / BILL BRADEN PHOTO

Aerial of the North T deposit, currently being mined at Nechalacho. July 2022.

## NECHALACHO – FROM MINE TO MOTOR IN JUST THREE YEARS

Identified during the uranium rush of the early 1970s, the deposit, 110 kilometres southeast of Yellowknife on the north shore of Great Slave Lake, saw over \$100 million in development before it was targeted as one of the world's best REE prospects by Vital Metals Ltd. of Australia.

Vital secured rights from Avalon Advanced Materials in 2019 to mine the surface and sub-surface of the 5,883 hectare claim block, with Avalon retaining the lower basal zone. Vital moved quickly, mobilizing Cheetah Resources Corp., its mining subsidiary, and contracted the Yellowknives Dene-owned Det'on Cho Ltd. to mine and crush the rich North T zone. Equipment and fuel went to site by ice road in the spring of 2021, and that summer and fall Det'on Cho mined enough ore for two seasons of sorting.

The heart of the project is the TOMRA sensor-based sorter, a compact German-built machine packed into a seacan. The technology conveys that used in diamond mines for decades: the dry process conveys pebble-size ore under X-rays which signal air jets to blow the red bastnaesite REE ore into one-tonne shipping bags. No water or chemicals are needed, and the physical and carbon footprint of the mine site is rated 90 percent less than a conventional metal mine.

Cheetah shipped 500 tonnes of ore by barge in October, 2021, to Hay River for eventual shipment to Vital's processing plant in Saskatoon. With plant commissioning expected by mid-2023, Saskatoon's 40-person workforce will further process the ore to a mixed rare earth carbonate before shipping to Norway's REEtec Group for final cracking into individual rare earth minerals. REEtec has already contracted with the German auto parts maker Schaeffler, which in turn will make the permanent NdPr (neodymium/praseodymium) magnets for Europe's EV market.

The choice of Saskatoon for its processing plant was no random pick by Vital. The Saskatchewan Research Council (SRC), the provincially-owned crown corporation with a strong track record for mining research and development, is investing \$51 million in a sister REE

processing plant next door to Vital's own \$20 million-plus facility. Vital intends to contract SRC for some specialty process and quality control services to support its own plant output.

Seasonal sorting continued in the summer of 2022 and another 1,000, one-tonne bags of ore were shipped from Nechalacho. Mining will resume in 2023 and could go for many years as Cheetah has found the deposit may hold more viable ore than expected.

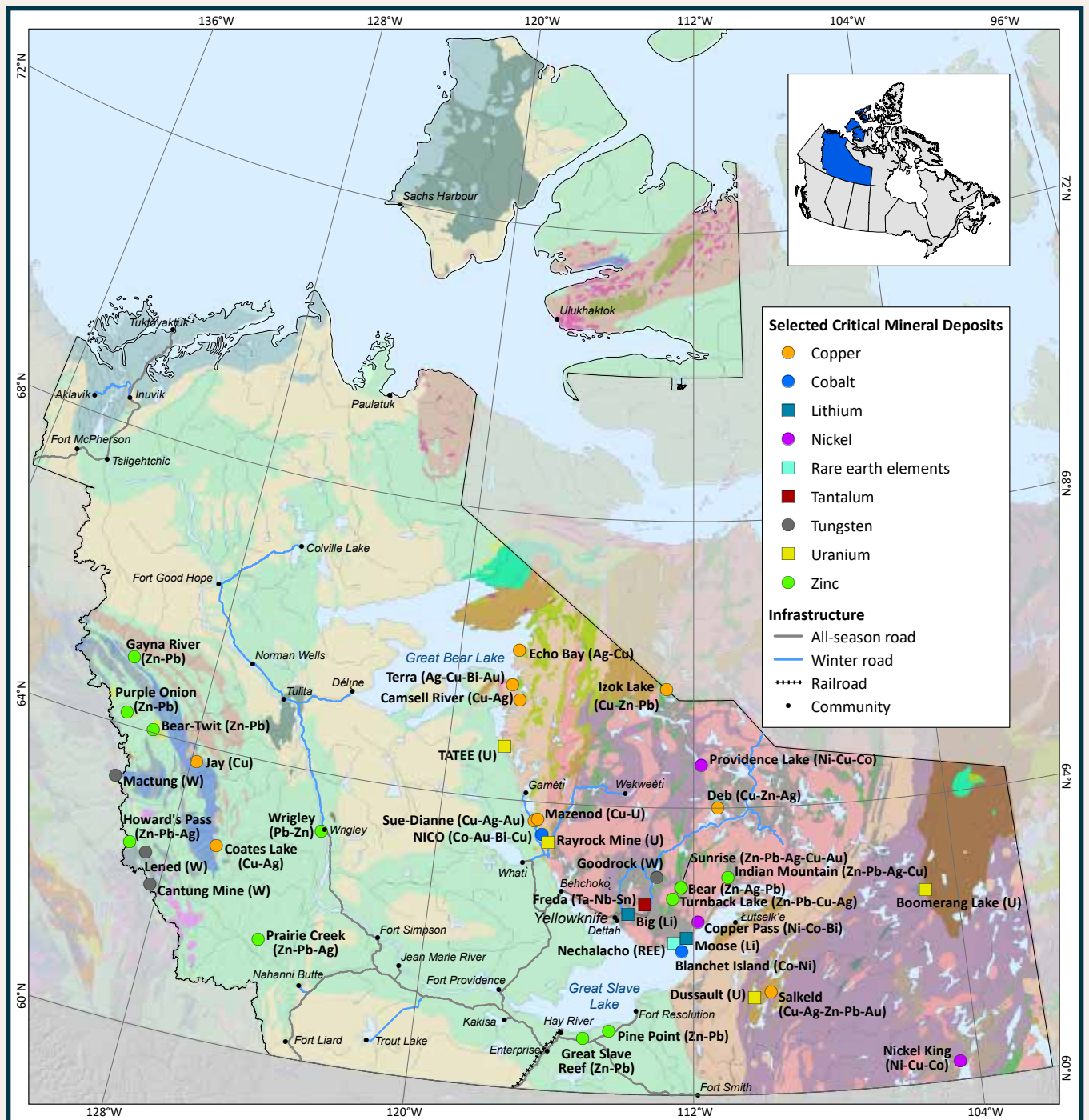
Vital and Cheetah ticked a number of ESG boxes in its rapid three-year program: it began mining and shipping ore, hired the first Indigenous company to mine on its own traditional land, achieved a 70 percent-plus Indigenous hiring record for its 58-person team, and a 90 percent Indigenous procurement benchmark. It did so with a zero lost-time safety record and a clean environmental inspection record.

This is all a prelude to moving two kilometres south to the world class Tardiff resource. This 94.7 million tonne world class deposit, grading 1.46 percent rare earth oxide, is in the advanced development stage. Current and future definition drilling will focus on optimizing the mine design. Cheetah is currently focused on plans to apply for amended permitting, based on previous licenses granted to Avalon.

Tardiff has the potential to be a multi-generational producer. The exponential increase in shipping volumes for such a mine has the potential to dramatically transform Hay River's prominence as the marine/rail/road hub for the NWT.

Vital also hopes to open new channels enabling greater Indigenous engagement, going beyond the decades-old approach of Indigenous Benefits Agreements, says David Connelly, strategy vice-president. "We see Indigenous ownership in mines, including sitting on the boards and contributing to the governance decision, as the next level of participation," he said in an interview. "We hope our Indigenous stakeholders will join us as owners and sit at the board table."





The NWT has **22 Critical Minerals\*** of significant occurrence or that are known to occur with good potential for additional discoveries.

- Bismuth
- Cesium
- Cobalt
- Copper
- Fluorspar
- Germanium
- Graphite
- Indium
- Lithium
- Molybdenum
- Nickel
- Niobium
- PGM Platinum Group Metals
- REE Rare Earth Elements
- Scandium
- Tantalum
- Tin
- Titanium
- Tungsten
- Uranium
- Vanadium
- Zinc

*\*Canada's 2021 Critical Minerals List*



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- ▶ Low-risk investment jurisdiction\*
- ▶ Wide range of early and advanced stage projects seeking investment
- ▶ Modernized mining legislation in progress to improve processes, increase certainty
- ▶ Strong resident support and indigenous engagement in mining sector
- ▶ New transportation infrastructure to improve access to mineral resources

\*4<sup>th</sup> of 85 jurisdictions - Mining Journal 2018 World Risk Report

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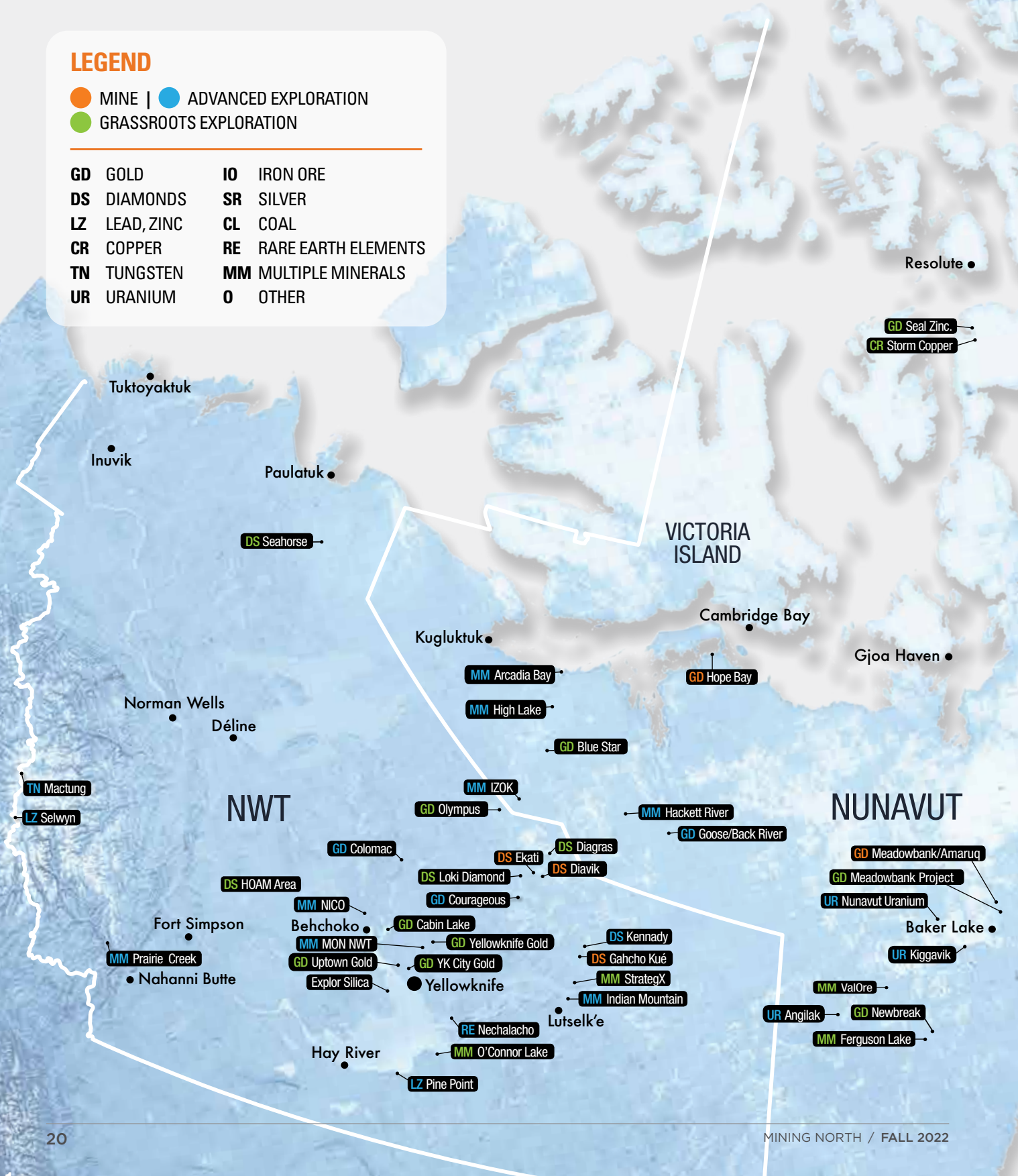
# NWT & NUNAVUT

## Where Our Members Work

### LEGEND

- MINE | ● ADVANCED EXPLORATION
- GRASSROOTS EXPLORATION

<b>GD</b> GOLD	<b>IO</b> IRON ORE
<b>DS</b> DIAMONDS	<b>SR</b> SILVER
<b>LZ</b> LEAD, ZINC	<b>CL</b> COAL
<b>CR</b> COPPER	<b>RE</b> RARE EARTH ELEMENTS
<b>TN</b> TUNGSTEN	<b>MM</b> MULTIPLE MINERALS
<b>UR</b> URANIUM	<b>O</b> OTHER







# ACTIVITY MAP

A quick glance at the map, which shows our members' mines, advanced projects and grassroots exploration projects in NWT and Nunavut, makes one point abundantly clear: Canada's North offers world class potential for the mining industry. It's a challenging environment but is also rewarding for both companies and Northern communities.

The North hosts a wide variety of minerals including diamonds, gold, iron, and 22 of the 31 critical minerals on Canada's official critical minerals list, including tungsten, base metals, copper, uranium, cobalt, bismuth and rare earths.

Mining has played a significant role in the North's past, is making a major contribution to the economy and to the socio-economic benefits communities now receive and will continue to be vital to future Northern economic development.

For a list of all the projects - mining, advanced and grassroots exploration – in the Northwest Territories and Nunavut, please see the following pages.

# Our Members' Active Mines, Advanced Projects and Grassroots Exploration

**LEGEND** ● MINES ● ADVANCED EXPLORATION ● GRASSROOTS EXPLORATION

## MINES

**DIAMOND MINE, NWT** – Rio Tinto. Canada's largest diamond producer, 300 km NE of Yellowknife, adjacent to Ekati mine. Mining of four deposits by open pit and underground. Mine life to 2025.

**HOPE BAY GOLD MINE, NU** – 130 km SW of Cambridge Bay. Acquired by Agnico Eagle in 2021. Production suspended for re-evaluation of its multiple deposits in 80km long Hope Bay greenstone belt, prior to reopening in 2024. 80,000 metres of drilling planned in 2022.

**EKATI DIAMOND MINE, NWT** – Arctic Canadian Diamond Company Ltd. is majority owner and operator. Ekati is Canada's first diamond mine. Open pit and underground operations. Current mine life, including Misery underground and Point Lake is 2028. Potential mine life extensions being investigated, including by underwater remote mining.

**GAHCHO KUÉ, NWT** – De Beers Group of Companies and Mountain Province Diamonds. Open pit mine, began production August 2016. Mining three kimberlite pipes in sequence with mine life currently estimated to 2030.

**MARY RIVER IRON MINE, NU** – Baffinland Iron Mines Corp. Iron ore mine on Baffin Island, 1,000 km north of Iqaluit. First ore shipped to market in 2015. Mine life proposed to 2037. Seeking production increase to bolster the project's viability; temporary increase granted to end of 2022.

**MEADOWBANK COMPLEX, NU** – Agnico Eagle Mines completed open pit mining of the Meadowbank gold deposits, 105 km by road north of Baker Lake. Added Amaruq deposit 65 km by road further north to extend mine life to 2027. Amaruq has now achieved underground commercial production.

**MELIADINE GOLD MINE, NU** – 25 km north of Rankin Inlet. Agnico Eagle commenced commercial production in 2019 and reached production milestone of one million ounces in 2022. Proposing mine life extension beyond 2032.

**NECHALACHO, NWT** – Cheetah / Vital Metals became the first Canadian Rare Earth Element producer from its deposit 100 km SE of Yellowknife.

Cheetah is now planning a tenfold increase in production and is constructing its own processing plant in Saskatchewan. Avalon Advanced Materials Inc. owns deep ore. REEs are on Canada's Critical Minerals list.

## ADVANCED EXPLORATION

**ANGILAK, NU** – ValOre Metals Corp. hosts high-grade Lac 50 uranium deposit. Inferred resource of 43.3 M lbs. U3O8, including 1.88 M oz silver; 10.4 M lbs molybdenum; 15.6 M lbs copper. The highest-grade uranium resource of scale (>20 M lbs) outside of Canada's Athabasca Basin. CAD\$11 M exploration drilling program in 2022. Uranium and copper are on Canada's critical mineral list.

**CHIDIYAK, NU** – De Beers Canada submitted a project proposal to Nunavut Impact Review Board to mine diamonds from several pipes discovered about 120 kilometres NE of Iqaluit and is completing a Pre-Feasibility Study to support the project.

**COLOMAC GOLD PROJECT, NWT** – Nighthawk Gold Corp's flagship asset, 200 km north of Yellowknife, NWT. Five gold deposits including the former Colomac mine and higher-grade satellite deposits within trucking distance. Current mineral resource estimate of 2.69 million ounces Indicated and 1.33 million ounces Inferred.

**COMMITTEE BAY, NU** – Fury Gold Mines continues exploration of its 270,000 ha property along the Committee Bay greenstone belt, approximately 180 km NE of Agnico Eagle Mines' Meadowbank mine. Their Three Bluffs deposit hosts Indicated and Inferred Resource of over 1.2 million ounces gold.

**COURAGEOUS LAKE, NWT** – Seabridge Gold Inc. project 240 km NE of Yellowknife. Prefeasibility study estimated 6.5 million ounces gold in proven and probable reserves. Seabridge is looking for a partner or to sell the property.

**EXPLOR SILICA, NWT** – NI-43-101 Pre-Feasibility Study with over 24 million tonnes of proven reserves of high-quality silica sands on and near the northern shoreline of Great Slave Lake.

**FERGUSON LAKE, NU** – Canadian North Resources. Contains NI 43-101 compliant resources of nickel, copper, cobalt, palladium, and platinum. The 2022 drilling program of 15,000

metres in some 60 holes to expand and upgrade mineral resources along the West and East Zones of the main mineralized horizon. These minerals are on Canada's Critical Minerals list.

**GOOSE MINE / BACK RIVER, NU** – Sabina Gold & Silver Corp. completed pre-construction activities and made formal mine construction decision in September 2022 for the Goose gold mine. All major equipment and materials procured. Plan to produce ~250k oz Au over 15 years via open pit and underground. Additional deposits being investigated.

**HACKETT RIVER, NU** – Glencore Canada plc. Potential open-pit zinc, silver, copper, and lead mine. 104 km SSW of Bathurst Inlet, NU. Project inactive. Zinc and copper are on Canada's Critical Minerals list.

**HOWARDS PASS PROJECT** – Selwyn Chihong Mining Ltd. Proposed open pit and underground lead-zinc mine in Yukon by NWT border, with access road through the NWT. Zinc is on Canada's Critical Minerals list.

**INDIAN MOUNTAIN LAKE, NWT** – Rover Metals acquired the VMS zinc-copper-lead-silver project, 200km ENE of Yellowknife, NWT with a historical resource spread across four zones. Zinc and copper are on Canada's Critical Minerals list.

**IZOK CORRIDOR PROJECT, NU** – MMG Limited holds the High Lake copper, zinc, silver and gold project, 260 km E of Kugluktuk, and the Izok Lake high-grade zinc, copper, lead, and silver project, 225 km SE of Kugluktuk. Requires Gray's Bay Road and Port to support mining. Zinc and copper are on Canada's Critical Minerals list.

**KAHUNA, NU** – Kodiak Copper Corp. Diamond property near Rankin Inlet hosts a high-grade, near surface inferred diamond resource of 4 million carats, in two kimberlite dikes at an average grade of 1 carat per tonne, with significant expansion potential.

**KENNADY NORTH, NWT** – Mountain Province Diamonds project 300 km ENE of Yellowknife, only 10 km from the Gahcho Kué diamond mine. Indicated resources in three kimberlites of 13.6M carats and inferred resources of 7.35M carats.

**KIGGAVIK, NU** – Orano / Denison Mines. Uranium mine proposed west of Baker Lake was not approved to proceed in 2015 by regulators and federal government due to lack of a start date. Uranium is on Canada's Critical Minerals list.

**MACTUNG, NWT** – Fireweed Metals acquired the advanced tungsten project located on the Yukon / NWT border west of Norman Wells. Mactung is one of the largest and highest-grade tungsten deposits in the world and is accessible by road from Yukon. Tungsten is on Canada's Critical Minerals list.

**MON, NWT** – Sixty North Gold Mining Ltd. is focused on restarting the high-grade small Mon Mine, 40 km north of Yellowknife, NWT, within the prolific Yellowknife Gold Camp. New discovery of an IOCG deposit announced. Copper is on Canada's Critical Minerals list.

**NAUJAAT DIAMOND PROJECT, NU** – North Arrow Minerals / Burgundy Diamonds completed processing and diamond recovery from a \$5.6M 2,000 tonne bulk sample removed in 2021, further confirming potentially high value, fancy orange and yellow diamond population in the kimberlite.

**NICO, NWT** – Fortune Minerals Ltd. proposed open pit and underground cobalt, gold, bismuth, copper mine 240 km NW of Yellowknife, NWT. The project requires a 50-km spur road from the mine site to the new Tlicho highway to support mining. Fortune is planning a refinery in Alberta. Estimated 21-year mine life. Cobalt, bismuth and copper are on Canada's Critical Minerals list.

**NUNAVUT URANIUM, NU** – Forum Energy Metals Corp. acquired significant uranium mineralization discovered previously by Cameco approximately 100 km west of Baker Lake in the Thelon Basin. In 2022, began preparations for 2023 drill program, including gravity surveys. Uranium is on Canada's Critical Minerals list.

**PINE POINT, NWT** – Osisko Metals' subsidiary Pine Point Mining is taking the lead / zinc project on the south side of Great Slave Lake through environmental assessment. Proposed 12-year mine life, 456 jobs. Project is on the site of an historical 25-year mine, also called Pine Point, and benefits from existing hydropower, road and rail services. Zinc is on Canada's Critical Minerals list.

**PRAIRIE CREEK, NWT** – NorZinc Ltd.'s planned underground zinc, lead, silver mine. 120 km W of Fort Simpson. All mine permits are in place, and staging has begun for an all-weather road. Projected 20-year mine life. Recently received permits for a 2022/23 winter road to allow mine construction to begin. Zinc is on Canada's Critical Minerals list.

**STORM COPPER AND SEAL ZINC, NU** – Aston Bay / American West. Storm is high-grade, near-surface sediment hosted direct shipping copper deposit with drill intersections including: 110m @ 2.45 percent Cu from surface. Seal is Polar-style zinc with 1 MT 10 percent zinc and

46.5 g/t silver. Copper and zinc are on Canada's Critical Minerals list.

**ULU/HOOD, NU** – Bluestar Gold is largest title holder in High Lake greenstone belt in the Kitikmeot Region. Completed 3,690 m drill program across highly prospective Ulu, Hood River, and Roma projects. Assays included 15.00 g/t gold over 17.65 m.

**YELLOWKNIFE CITY GOLD, NWT** – Gold Terra Resource Corp. optioned the Con gold mine adding to its 800 sq km of contiguous land around Yellowknife's former Giant and Con gold mines. The 2021 mineral resource was 1.2 million Inferred ounces plus 541,000 oz on the Con mine option, with exploration continuing to find gold mineralization.

**YELLOWKNIFE GOLD, NWT** – Gold Mining Inc. Comprises several properties (Nicholas Lake, Ormsby, Goodwin Lake, Clan Lake and Big Sky) that cover portions of the Yellowknife greenstone belt from 17 to 100 km north of Yellowknife. Measured and Indicated resource containing 1,059,000 oz; inferred of 739,000 oz. Gold Mining has not conducted exploration work since acquiring the property in 2017.

## GRASSROOTS EXPLORATION

**ARCADIA BAY, NU** – West Kitikmeot Gold Corp. Majority Inuit-owned company holds gold project on the Coronation Gulf near proposed Gray's Bay port, with direct access to tidewater. Extensive exploration history, with more than 380 holes totaling 30,000 metres drilled, and significant historical mineral resource. Work is underway to prepare for 2023 drill program.

**BAFFIN GOLD, NU** – ValOre Metals holds entire gold belt on Baffin Island, NU.

**DIAGRAS PROPERTY, NWT** – Arctic Star Diamonds holds 58 contiguous claims of 48,346 hectares, 22 km NNE of the Diavik diamond mine. Discovered the Sequoia Kimberlite Complex in 2021. Two commercial diamonds were recovered from a small sample, and diamond chemistry suggests potential for large diamonds over 52 cts.

**LOKI DIAMOND, NU** – North Arrow Minerals is in ground geophysics and drilling exploration stage, to the immediate west and southwest of the Ekati and Diavik diamond mines.

**MEADOWBANK PROJECT, NU** – Western Atlas Resources. Project consists of 580 sq.km. of mineral claims located along trend and immediately adjacent to Agnico Eagle's Meadowbank and Amaruq producing gold mines. Project is fully permitted for exploration, including drilling.

**MEL DIAMOND, NU** – North Arrow Minerals is at discovery stage, with continued target definition and/or delineation of known kimberlites, 18 km from tidewater, 210 km NE of Nauyasat. Last work in

2018. StrategX Elements Corp. has now acquired the non-diamond mineral rights on the property and is using the Mel camp.

**MUSKOX/CONTWOYTO/HOOD, NU** – Benchmark Metals plans to explore this property in the Contwoyto Lake area.

**NEWBREAK RESOURCES, NU** – Newly listed exploration company with various Kivalliq gold projects including Sundog, Esker/Noomut, Sy, and Angikuni Lake.

**OLYMPUS, NWT** – Golden Planet Mining Corp. Exploration mapping and sampling in the Point Lake greenstone belt to advance gold targets from geophysical surveys and follow-up from 2021 till and rock sampling.

**O'CONNOR LAKE, NWT** – Slave Lake Zinc Corp. Historic zinc lead copper property south of Great Slave Lake and east of Osisko Metals' Pine Point project. Work included prospecting and ground truthing geophysical anomalies identified by 900-line kilometre airborne survey carried out in 2021 and to re-examine exploration targets discovered prior to 1952. Zinc and copper are on Canada's Critical Minerals list.

**PISTOL BAY GOLD, NU** – Nordgold holds the gold property in this greenstone belt 70 km SW of Rankin Inlet, NU. Estimated total resources of 1.6 M oz of gold at a grade of 2.2 g/t.

**CABIN LAKE & UPTOWN GOLD, NWT** – Rover Metals Corp is exploring for gold at Cabin Lake, 110 km NNW of Yellowknife, and Uptown Gold at Yellowknife.

**SEAHORSE, NWT** – Olivut Resources successfully completed a helimag geophysical program during 2019 and followed up with six reverse circulation, heli-portable drill holes to test certain targets. Olivut also holds HOAM diamond project in central NWT.

**SILVER RANGE RESOURCES** – Precious metals prospect generator working on various properties in Nunavut and NWT. Actively seeking JV partners to explore its assets.

**PROJECTS MEL, NAGVAAK, & TASIJUAQ, NU** – StrategX Elements Corp. is exploring on permits and claims at three projects on Melville Peninsula: Project Mel and Project Nagvaak for energy transition metals, and Project Tasijuaq, a magmatic nickel -copper -cobalt discovery. Work, including geophysical and geochemical surveys, conducted to identify drill ready targets. These minerals are on Canada's Critical Minerals list.

**PROJECTS 939 AND EA, EAST ARM, NWT** – StrategX Elements Corp. is exploring two projects: Project 939 a new cobalt discovery and Project EA South, which is a large copper-gold-cobalt target. Copper and cobalt are on Canada's Critical Minerals list.



# NEW TECH AND NEW THINKING

DE BEERS CANADA

It's not your father's, or grandfather's, mining industry anymore. Today's mining and exploration projects use hi-tech and innovative thinking to solve problems.

► By Graham Chandler

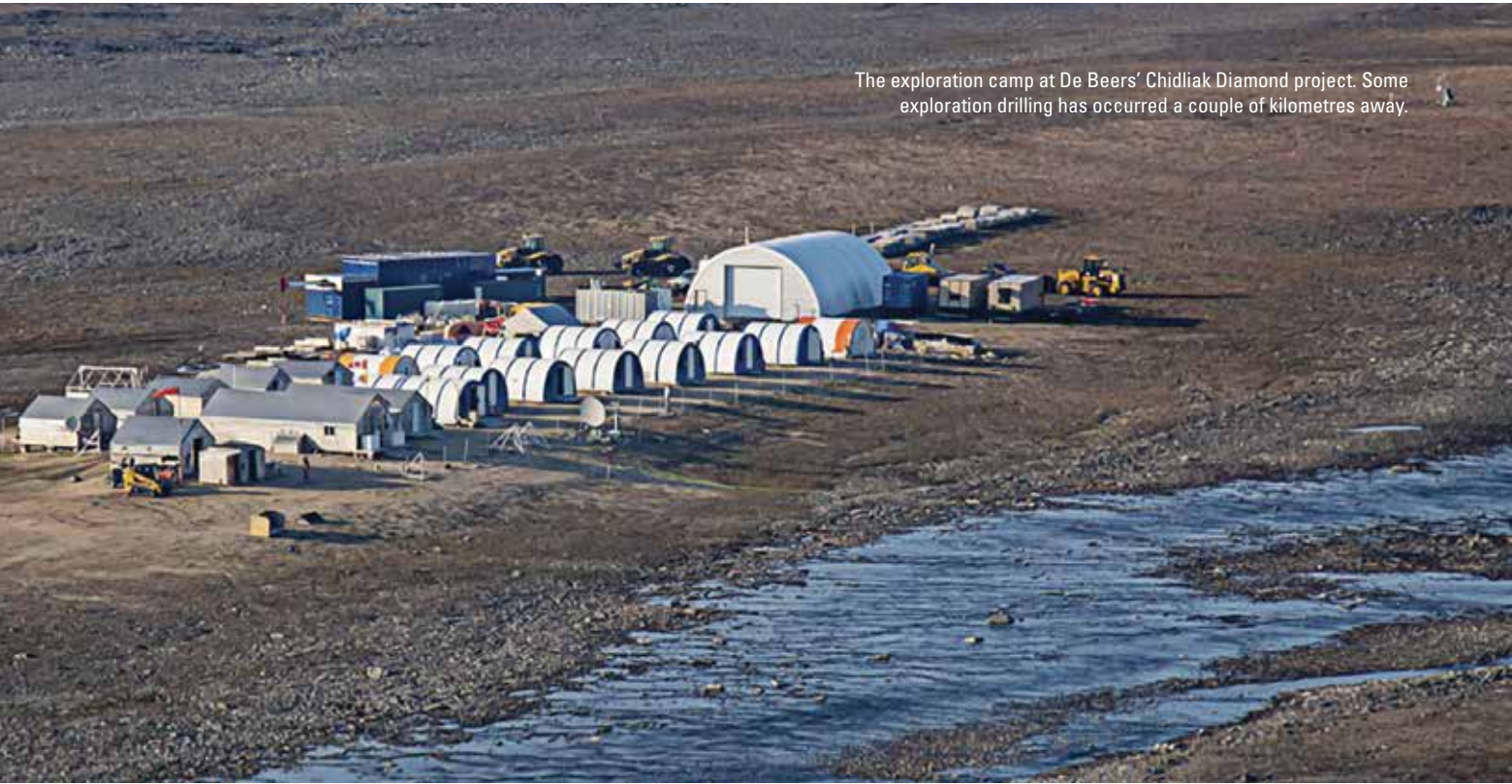
Mining earned a negative reputation from years of safety problems, poor wages, mine disasters with loss of life and processing procedures that left toxic waste in the environment. But that is undergoing major changes. New technology, environmental assessments and regulation, and a greatly increased awareness of the environment by industry and the general public means that mining companies in Canada do things much differently today.

There are currently seven projects in the Northwest Territories and Nunavut that are excellent examples of the new approaches to mining and reclamation in Canada's North.

- **CHIDLIAK:** Remote Operations Could Reduce Local Impact
- **EKATI:** An Underwater Global Arctic First
- **NECHALACHO:** X-rays and Wind Turbines in One Neat Package
- **NIGHTHAWK GOLD:** Leapfrogging Ahead with Exploration Software
- **DIAMANT:** Re-imagining Closure
- **GIANT MINE:** There's an App for That – Mine Remediation in (Almost) Real Time
- **SNAP LAKE:** Reduce, Reuse, Recycle, Remediate

## CHIDLIAK: REMOTE OPERATIONS COULD REDUCE LOCAL IMPACT

A 100 percent-owned De Beers Canada exploration project, Chidliak lies on Baffin Island, about 120 kilometres northeast of Iqaluit. Exploration has been focused on a cluster of bodies called the Chidliak kimberlite field: 74 kimberlites within an 80- by 60-kilometre area. They are small—averaging under a hectare—and occur at both surface and sub-surface. As at May 2022, six kimberlites have been identified for mining. The project is still a few years away from development.



The exploration camp at De Beers' Chidliak Diamond project. Some exploration drilling has occurred a couple of kilometres away.

Because the pipes are small, a breakthrough approach is planned. “The Chidliak Project is to be the location where the Diamond FutureSmart vision is fully implemented,” says Erik Madsen, Lead, Corporate Affairs for De Beers Group Managed Operations, Canada. This means in all decision making, including mine plan development, key principles apply: low-carbon energy; small footprint; minimal water use; modular, automated, reliable, connected infrastructure; remote monitoring and a modern employee operating model. “Concepts are being designed from the ground up as a unique approach to recovering diamonds in Canada and also with an eye to technologies that have potential synergies with our host communities,” he says.

For example, De Beers is looking at developing the site to be re-supplied entirely by air. Eliminating the need for a road, shipments could be via conventional aircraft and even airships. Although no suitable airships have yet been approved for use in Canada, “we are also open to working with local communities, governments and other businesses and industries to explore the possibilities of using airships beyond just resupplying a possible Chidliak mine,” says Madsen.

Powering the site will be a challenge. The proposed approach: “a suite of power

solutions that work together to provide the energy needed to power the infrastructure and support mining operations,” says Madsen. Low- or zero-carbon synthetic lubricants for mobile equipment; solar and wind for electrical power infrastructure or even a micro nuclear reactor are all under consideration Madsen says. “A lot of work lies ahead to narrow down and identify the preferred options and we hope that the upcoming Nunavut Impact Review Board (NIRB) process will help us get a better understanding of community viewpoints on the available options as well.”

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The Chidliak Project is to be the location where the Diamond FutureSmart vision is fully implemented...

ERIK MADSEN, LEAD, CORPORATE AFFAIRS FOR DE BEERS GROUP MANAGED OPERATIONS, CANADA

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The URM – Underwater Remote Mining – a remote-operated “bottom crawler” deployed from a floating platform on the lake surface, proposed for use at Ekati.

## EKATI: AN UNDERWATER GLOBAL ARCTIC FIRST

As conventional production nears the end of its run, the Ekati mine still needs to economically extract diamond bearing kimberlite from marginal pipes and the deeper sections of already-mined open pits.

The solution? URM — Underwater Remote Mining using a “bottom crawler” deployed from a platform floating on the lake surface to carve out the kimberlite. That ore is then pumped to the surface, dewatered, and transported to the processing plant for diamond recovery.





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“Ekati will be a world first for attempting URM mining of kimberlite or any other hard rock orebody for any commodity,” says Rory Moore, President and CEO of Arctic Canadian Diamond Company, owner of the Ekati Mine.

That includes a first for the global Arctic. “The main challenge will be to ensure that the mining system is reliable as we will be operating on a seasonal basis which will make every productive hour critical to achieving production targets,” says Moore. Helping assure that, he says, they plan to have a backup crawler. As well, there will be no operations in winter until the system is proven to

work reliably during open water months. Another potential challenge, Moore says, will be the large inclusions of hard granite contained within the kimberlite, which will increase the wear and tear on the crawler’s mining drum teeth.

Because URM calls for a much smaller workforce, reductions in employment are expected. Moore says they intend to mitigate that through natural attrition, voluntary retirements, and redeployment of equipment operators. Many will be employed in the ongoing reclamation activities as the mine transitions from conventional mining to URM.

Preparations continue apace: in September, Arctic Canadian contracted IHC Mining to build and deliver the first underwater mining crawler. It follows the first milestone earlier in the year when the launch and recovery platform was contracted to IHC, scheduled for delivery by year-end 2022.

Should URM work as expected, “there is potential to extend the mine life at Ekati for at least ten years and potentially double that,” says Moore.



## It's time to invest in the Northwest Territories

The Government of the Northwest Territories is committed to improving the lives of residents.

**This means addressing the long-standing infrastructure gap that exists in our territory.**

- > With our limited resources, collaboration and partnership with the federal government and Indigenous leadership is critical to closing the gap between the North and southern Canada.
- > We need investment that will enable us to better support residents and take advantage of economic opportunity in the North to the benefit of all Canadians.

The Northwest Territories is poised to be a leader in the green energy economy in Canada.

- > Transformative, nation-building projects like the **Taltson Hydro Expansion** would provide transmission of renewable energy to support the extraction of critical minerals and rare earths that are essential in manufacturing lower-carbon technology like batteries, magnets and solar panels.
- > Investment in the **Mackenzie Valley Highway** will connect people to increased opportunities, and support a stronger, more prosperous economic future for residents and businesses. This also means increased opportunity for the resource development and tourism sectors.



The Honourable Diane Archie  
Minister of Infrastructure

As Minister of Infrastructure, I am focused on improving road access, increasing hydro transmission and advancing communications infrastructure that supports the resource sector.

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The TOMRA computerized ore sorter at Nechalacho uses X-ray and air jet technology to separate the bastnaesite ore from the host quartz rock.

## NECHALACHO: X-RAYS AND AIR JETS IN ONE NEAT PACKAGE

The Nechalacho rare earth elements (REE) deposit, 110 kilometres southeast of Yellowknife, was discovered 50 years ago. It was explored in the past but there was no production until 2019 when Australian company Vital Metals secured mining rights and designed a strategy to bring these critical minerals to market. They formed Cheetah Resources Corporation and put together an innovative partnership with the Yellowknives Dene First Nation to mine the high-grade deposit.

A key new component is the TOMRA sensor-based sorter, a compact, portable machine that uses X-ray (colour and optical sensors are options) and air-jet technology to separate and concentrate the heavier bastnaesite ore containing the REE from the lighter quartz host rock. This process eliminates tailings and processing chemicals, and greatly reduces water usage and land and carbon footprints.

It's simple but efficient: crushed ore is dumped onto a conveyor. The X-ray sensor records data about the bastnaesite which is quickly processed by a computer. That activates 140 air jets to blow the element-rich components onto

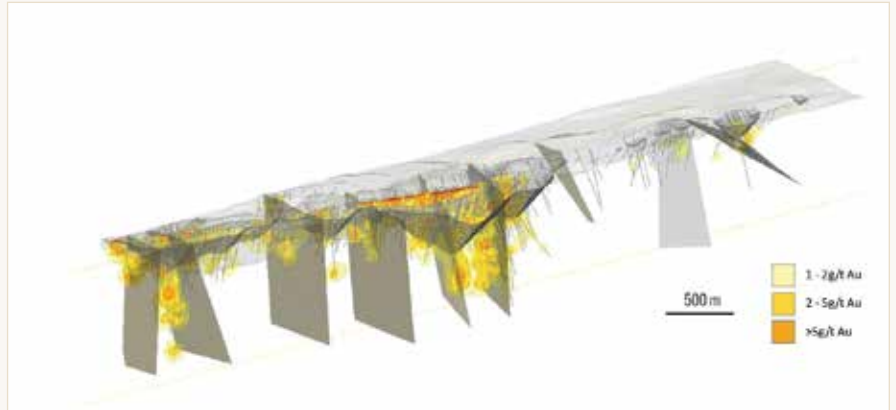
another conveyor that sends the ore to large ore bags for transportation. The waste rock falls onto a different conveyor to eventually return to the ground. "You only use about ten percent of the energy," says Cheetah's David Connelly, Vice President of Strategy and Corporate Affairs. "So your carbon and physical footprint are 90 percent smaller than in a mine using traditional technologies."

TOMRA is a Norwegian company, first formed in 1972 to sort and recycle bottles from vending machines. It expanded its use of the technology to food sorting and other waste products that could be recycled. The TOMRA mineral sorter is in use at several mines around the world.



## NIGHTHAWK GOLD: LEAPFROGGING AHEAD WITH EXPLORATION SOFTWARE

Nighthawk Gold owns a massive exploration land package 200 kilometres north of Yellowknife covering 930 square kilometres. Formerly the site of the Colomac gold mine, the property hosts the Indin Lake (Archean) Greenstone belt, which is vastly underexplored and is a geological setting with immense potential for precious and base metal discoveries. Nighthawk's drilling operations on the Indin Lake property was generating massive reams of data which demanded a huge upgrade in software to keep up.



Nighthawk Gold uses Seequent's Leapfrog Geo software to produce this image of Colomac's main deposit.

It is a big step in any project to change operation parameters and integrate large amounts of new and historic data like at the Indin Lake Gold Project, says John McBride, Vice President of Exploration. "With the volume of historic data

and the continued addition of exploration and geotechnical data going forward we needed a true database to query, select and analyze our data." So in 2021 they moved from an Excel-based logging process to Seequent's MX Deposit logging database, and Seequent's Leapfrog software for modeling and geological interpretation.

Why the choice? McBride feels the software is well-rounded and has a user-friendly interface. "It is also cloud-based so our team across the country can see live updates as data is entered on site," he says. And Leapfrog allows for quick interpretation and updating in the fast-paced drilling program that Nighthawk has at the Indin project, he adds. "It allows us to visualize and share interpretations easily. This has allowed us to communicate visually ideas, progress and results within the company from the field to corporate. I wouldn't say anything was unexpected but a fresh look always allows new or better understanding of the project. The interface is intuitive and easy to troubleshoot, as well as the fast modeling."



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DIAVIK DIAMOND MINES / BILL BRADEN PHOTO

The camp and processing facilities at Diavik May 26, 2022.

## DIAVIK: RE-IMAGINING CLOSURE

Diamond production from the NWT's existing mines is scheduled to end by 2031, followed by several years of reclamation. Diamond mining generates at least 29 percent of the NWT's GDP, so related economic impacts will be substantial. A potential helper: repurpose the mines after closure. Diavik has been giving it some serious thought.

Under the "Reimagining Closure" initiative of January 2022, an economic feasibility study was recommended at Diavik to determine the viability of repurposing the site after operations ceased. Diavik worked with the Canadian Northern Economic Development Agency (CanNor) to assist the NWT and Nunavut Chamber of Mines in their application for funding to conduct the financial feasibility study to determine the cost of potential post-closure usage of

the Diavik site. The application was successful and requests for proposal are currently being solicited to complete the study.

But before any repurposing can happen, current commitments must be honoured. "Rio Tinto is fully committed to closing the Diavik mine site with the

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Diavik's closure planning must assume that there will be no repurposing of the mine site and that it will be fully remediated...

GORD MACDONALD, CLOSURE MANAGER FOR RIO TINTO DIAVIK MINE

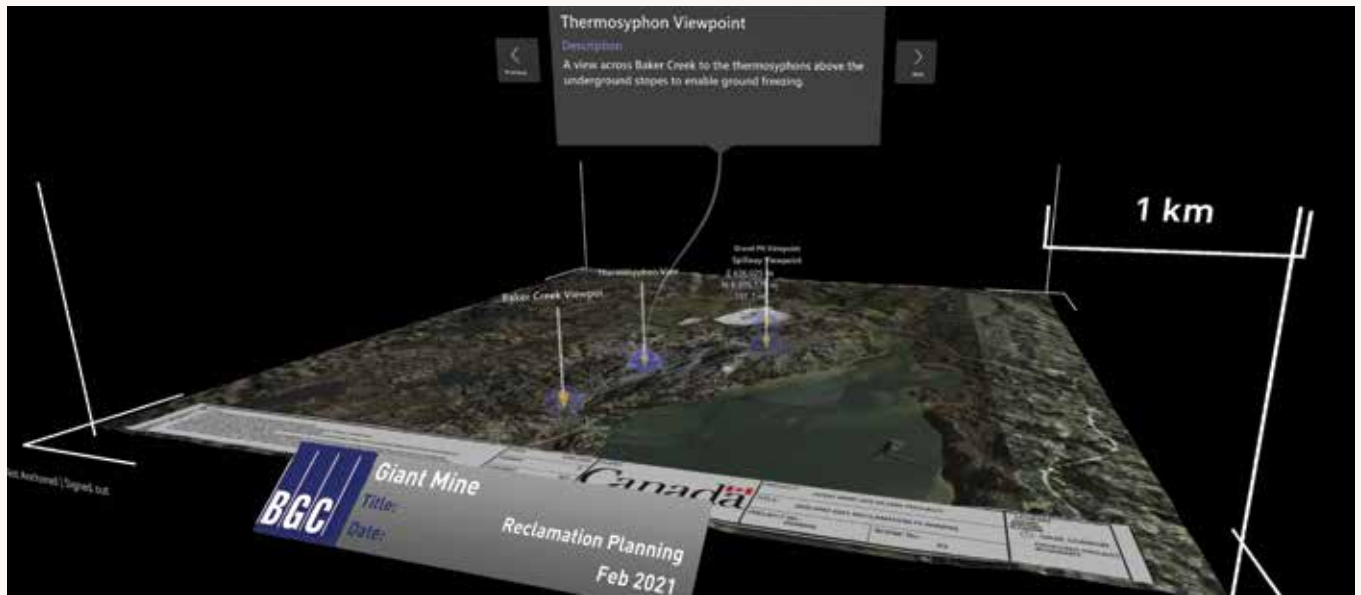
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goal of relinquishing the lease on the land," explains Gord Macdonald, Closure Manager for Rio Tinto Diavik Mine. "Diavik's closure planning must assume that there will be no repurposing of the mine site and that it will be fully remediated. While Diavik is in discussion with its partnership agreement

communities and government stakeholders to explore the possibilities of post-closure usage of Diavik's assets, there are no preferred options." However, he adds, Diavik remains open to collaborating with partners in the future to take advantage of the knowledge gained during the time the company was actively mining at Lac de Gras.

There are many challenges but the main one is financial. "The most significant challenge of repurposing Diavik's assets would be associated with the cost," says Macdonald. "This is the main reason a financial feasibility study was explored. Once the costs are better understood, this could then be compared with what types of use could afford the costs. Diavik is a fly-in, fly-out mine site on the tundra with no connection to external infrastructure, so there are significant operating costs and logistical challenges associated with its operations."





A view seen from the App - Thermosyphon Viewpoint as at February 2021.

## GIANT MINE: THERE'S AN APP FOR THAT – WATCH MINE CLEAN-UP IN (ALMOST) REAL TIME

The Giant Mine operated within the city borders of Yellowknife from 1948 until 2004. When operations ceased, the Government of Canada became site custodian responsible for remediation. It's a mind-boggling undertaking: at closure, 237,000 tonnes of highly toxic arsenic trioxide waste remained on site stored in underground bunkers. The surface of the mine site was contaminated, and the very large tailings pond needed to be treated and remediated.

The Giant Mine Remediation Project involves containment and management of the arsenic trioxide waste, demolition and removal of surface buildings, and remediation of surface areas. With much public interest in the cleanup, a convenient

and safe way was needed to show the operation. The modern solution: there's an app.

"At CIRNAC, we were challenged with communicating and demonstrating a complicated, very technical project, including the ongoing work and eventual impact of the remediation project, using complex 2D maps, drawings and schematics," says Chris MacInnis, Director, Giant Mine Remediation Project, Crown-Indigenous Relations and Northern Affairs Canada. "With the app, users are able to 'see' the remediation work happening 600 metres below ground in a simple, lifelike 3D environment without stepping foot on a contaminated site."

The app is free and available on the Apple App and Google Play stores. It uses augmented reality (AR) to show an area overview map that has clickable callouts containing more information on the plans. Users can also use the forward and back buttons to move through the different scenes, view the underground, and see immersive views of the site post-reclamation.

Interested parties can stay current too. "As the site progresses through remediation, new views of the site are added to the app as part of the annual app updates," says MacInnis. It has proven popular: up to September 18, 2022, the app has been downloaded 264 times from the Apple App Store and 30 times from the Google Play store.

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...we were challenged with communicating and demonstrating a complicated, very technical project, including the ongoing work and eventual impact of the remediation project...

CHRIS MACINNIS, DIRECTOR, GIANT MINE REMEDIATION PROJECT, CROWN-INDIGENOUS RELATIONS AND NORTHERN AFFAIRS CANADA

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## SNAP LAKE: THE FOUR R'S - REDUCE, RE-USE, RECYCLE, REMEDIATE

About 220 kilometres northeast of Yellowknife, the Snap Lake underground diamond mine opened in 2008 and produced until 2015, when De Beers determined it was no longer economically viable — time to close down and remediate. It was most important to repurpose as many of the assets as possible.

But that option presented its share of challenges.

“The biggest challenges at Snap Lake are the remoteness and the climate,” says Jasyn Hiller, Major Projects, Purchasing and Sales at Lenmark Industries, one of the site closure contractors. “Removing the powerhouse equipment in late February and into March meant we were working in minus 40°C weather. There was no heat in the building when we got there and half of the equipment we removed was outdoors.” Hiller says coordinating the freight up and down the winter road was also a challenge as the loads were large and extra heavy, necessitating specialized trailers and an ice engineer’s review and approval prior to leaving the site.

First to go were the six diesel generators and associated powerhouse equipment, then equipment from the process plant—from pumps to conveyor drives and more. A wing of 36 dormitory rooms was moved to Gahcho Kué Mine, where the modules were reassembled and renovated for reuse. Also, representatives from nearby



Lifting the rotary scrubber shell out of the process plant at Snap Lake.

NWT Indigenous communities were brought in to identify equipment and other surplus items that could be donated or sold for reuse.

Recycled items are readily marketed. “We have developed our own proprietary software that with a single click will list

the equipment on up to ten e-commerce sites along with on our website,” says Hiller. Items not usually worth moving are scrapped or demolished.

Overall, “to our knowledge this is the first for such a remote northern mine,” sums Hiller. **MN**

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First gold poured at the Meliadine mine, February 21 2019.

► By Bill Braden ◀

# AGNICO EAGLE'S HAT TRICK

*With its third project added to its Nunavut portfolio, the world's third largest gold producer continues its journey as Nunavut's premier miner and biggest private sector employer.*

Garbed from head to toe in protective heatshield gear, the smelter operator at the Meadowbank gold mine, 110 kilometres north of Baker Lake, slowly tipped the furnace to open its fiery maw. On February 27, 2010, above the blazing roar of the 1000-degree Celsius crucible, company and community leaders cheered as a glowing stream of molten gold gradually spilled into a cascade of iron brick molds.

That first brick was eagerly passed around among dozens of employees who proudly hefted it for photos. It weighed a modest 8.1 kilograms (bricks typically top 30 kilograms), but it meant the world to the men and women who witnessed its pour: it was Nunavut's newest, and only, producing mine.

The same scene would be repeated just shy of nine years later, on February 21, 2019, at Agnico Eagle's Meliadine gold project, 25 kilometres north of Rankin Inlet. This time, the first brick weighed over 32 kilograms. Not everybody could lift it.

"This is a historic day and also a very proud day for Agnico Eagle and also for Nunavut and for Canada," declared Sean Boyd, CEO when he addressed employees that afternoon. "This journey started in 2010. We were confident we had the skills and the experience." He added, "Given the fact that this project is ahead of schedule and will likely be below budget, it's an example of outstanding teamwork."



Aerial View of the Hope Bay Gold Mine, 125 km SW of Cambridge Bay purchased by Agnico Eagle in 2021.

Skills and experience indeed. Toronto-based Agnico Eagle Limited (NYSE: AEM; TSX: AEM) has gathered 65 years of boots-on-the-ground wisdom about the world of gold and how to mine it. With 14,000 employees at 12 producing mines on three continents, and with advanced exploration at five more, Agnico expects to pour more than 3.2 million ounces of gold this year.

Agnico's merger-of-equals with Canadian gold major Kirkland Lake Gold in February of 2021 means the two can lay claim to a ranking of third largest producer in the world at 4.63 million ounces in 2021, behind Newmont and Barrick Gold. The deal brings Kirkland's Detour Lake and Macassa mines in Canada, and Fosterville in Australia, into the portfolio.

That track record no doubt emboldened Sean Boyd, then the CEO and as of 2022, the board's executive chairman, to again put those deft skills and sage knowledge to use when he added Hope Bay as AE's third project in Nunavut in 2021.

And, in addition to managing the many challenges inherent in operating in the harsh Arctic environment, Agnico agilely navigated its way through two uncertain years of the expense and disruption of the worldwide Covid pandemic.

Agnico's leadership goes beyond corporate expansion. It's making serious inroads in its environmental impact and energy sourcing, no small endeavour in the Arctic where diesel is the automatic energy default. Companywide, it claims 54 percent of its energy already comes from renewables, making it the lowest greenhouse gas emitter in its peer group.

While GHG emissions in Nunavut jumped 11 percent from 2019 to 2022, primarily due to aggressive expansions, Agnico sees a big potential win in the proposed road/hydro/fibre optic corridor from Manitoba into the Kivalliq region, where both of its operating mines are located. It's a concept that's been decades in the making, and with Meadowbank and/or Meliadine

as anchor customers could be the game changer for the whole region.

Wind power is also in the air. At Hope Bay, in the shadow of Diavik Diamond Mine's successful wind project in 2012, Agnico is in talks with Quebec-based Tugliq Energy Co. and Hiqiniq Energy Corp., a subsidiary of Kitikmeot Corp., to build and operate a wind turbine project at Hope Bay. Tugliq already has success with two, three-megawatt turbines at the Raglan mine in Nunavik.

"Wind energy is quickly evolving, and these new wind turbine models have proven to work well in Arctic conditions," said Agnico, which is already applying to build a big wind farm at the Meliadine mine near Rankin Inlet. "Globally, we are at a critical juncture in the climate crisis, and we know that the status quo cannot be maintained."

Not shy of investing in the future, the company put US\$163 million into exploration across



its holdings, the most ambitious campaign in its 64-year history. Agnico ploughed 20 percent of that – US\$33 million – into its three Nunavut holdings at Meadowbank, Meliadine and Hope Bay.

## HOPE BAY REBOOT IN 2024

As former Hope Bay owner TMAC Resources struggled to keep its fledgling project alive through 2019, it sought out a buyer with deeper pockets and mining savvy to ensure its future. By May of 2020, it thought it had found it in the Chinese state-owned company Shandong Gold Mining. But months of political fretting ended with the federal government (and sour public opinion) shutting the deal down, on fears that a Chinese-owned company could get a toehold in a strategic Arctic location.

Agnico acted quickly with a superior bid that took over TMAC's outstanding debt with a \$C2.20 per share offer, a deal readily accepted by relieved shareholders. TMAC President and CEO Jason Neal lauded the January 2021 deal, saying, "Agnico Eagle is one of the strongest gold producers internationally, a Canadian champion and has been operating in Nunavut for more than a decade with a great track record with communities, employees and the environment."

Agnico continued mining and milling at the Doris underground deposit for a few weeks following the deal's closure to get familiar with existing processes, then ceased operations to conduct a thorough revision of the mine plan and how to go about restarting by 2024. It put almost

# AGNICO EAGLE WORLDWIDE BY THE NUMBERS

## AGNICO EAGLE BY THE NUMBERS 2021

<b>12</b>	Producing assets: Canada (8), Mexico (2) Finland (1) Australia (1)
<b>5</b>	Exploration projects: Canada (4) Mexico (1)
<b>3rd</b>	Rank in world gold producers including the Kirkland Lake Gold merger
<b>US\$3.8</b>	Billion revenue
<b>3.161</b>	Million ounces gold
<b>2.6</b>	Million ounces silver
<b>8,827</b>	Tonnes zinc
<b>2,955</b>	Tonnes copper
<b>US\$163</b>	Million worldwide exploration
<b>14,000</b>	Worldwide workforce
<b>\$1.58</b>	Billion in local and Indigenous procurement
<b>15</b>	Percentage of female employees

## NUNAVUT – BY THE NUMBERS 2021

<b>772.8</b>	Thousand ounces gold
<b>\$556</b>	Million in Indigenous procurement (62% of total)
<b>3,830</b>	Total Nunavut workforce (Compare to Government of Nunavut - 5,488)
<b>18</b>	Percentage of Nunavummiut employees

## MEADOWBANK COMPLEX/AMARUQ 2021

(110 km north of Baker Lake)

<b>324.8</b>	Thousand ounces gold produced
<b>2.59</b>	Million ounces reserves proven and probable
<b>9,840</b>	Tonnes/day milling capacity
<b>2027</b>	Projected end of mine
<b>2,070</b>	Total workforce

## MELIADINE 2021 (25 km north of Rankin Inlet)

<b>391.7</b>	Thousand ounces gold
<b>3.65</b>	Million ounces reserves proven and probable
<b>4,698</b>	Tonnes/day milling capacity, to 6,000 TPD by 2025
<b>2032</b>	Projected end of mine (under assessment to 2043)
<b>1,410</b>	Total Workforce

## HOPE BAY 2021\* (125 km southwest of Cambridge Bay)

<b>56.3</b>	Thousand ounces gold (to Sept 2021)
<b>2,000</b>	Tonnes/day milling capacity
<b>TBA</b>	Projected end of mine
<b>400</b>	Total Workforce (to Sept 2021)

\*Production paused in Sept 2021 to re-evaluate deposit and mine plan  
Source: 2021 Agnico Eagle website and Sustainability Report

half its Nunavut exploration budget – C\$16.2 million – into Hope Bay and its known resources at the Doris, Madrid and Boston deposits.

On a regional scale between the Hope Bay and Elu greenstone belts, some 90 regional targets have been defined over two 80-kilometre-long greenstone belts. Exploration programs carried out over 2020 and 2021 logged almost 140,000 metres of delineation drilling with some rewarding results ranging from 12.9 grams to 32 grams/tonne.

When it was running at production scale, Hope Bay had 400 employees, according to Agnico's 2021 Sustainability Report. Company spokesperson Sonja Galton said in February of this year that laid off direct employees and contract workers would be offered jobs in continuing exploration at site and at other Agnico properties in Canada.

## MELIADINE SEEKS EXTENSION TO 2043

Originally planned for a 15-year life until 2032 from 12 open pits and two underground systems, Agnico wants to expand underground operations, almost doubling its production term to 2043. It's a major upgrade to the project, 25 kilometres north of Rankin Inlet, which the Nunavut Impact Review Board (NIRB) said in late June requires a "reconsideration" or assessment of its existing licenses, a process that typically take six to nine months and requires federal signoff.

Agnico also wants to go big with renewable energy, proposing an 11-unit wind farm generating a substantial 46.2 megawatts of installed power, enough to satisfy increasing the mine's capacity by 40 percent to about 14,000 tonnes per day from three underground sources. A new airstrip is also part of the proposal.

The Kangiqtinig Hunters and Trappers Organization, located in Rankin Inlet, is on record as opposing the expansion because of concerns over caribou migration. The Nunavut Government, however, expects the plan will prolong Meliadine's economic benefits, employment, business contracts and training programs, said Agnes Simonfalvy, the Avatiliriniq coordinator for the Government of Nunavut, in a letter to NIRB.

Agnico says an airstrip could also be a future addition, reducing pressure on the all-weather road from Rankin and cutting back on dust issues and interference with caribou. The 700-person camp is currently supplied via the road, with major resupply by barge to Rankin Inlet via shipping across Hudson Bay.

As of December 31, 2021, Meliadine was estimated to host 3.7 million ounces of gold in proven and probable mineral reserves (19.2 million tonnes grading 5.93 g/t gold) mostly



Haul truck taking on a load of ore at the Amaruq gold mine, north of the Meadowbank mine.

AGNICO EAGLE



The Meliadine gold mine, 25 km north of Rankin Inlet at sunrise.



at underground depth, as well as 2.2 million ounces of gold in measured and indicated mineral resources (18.0 million tonnes grading 3.88 g/t gold) and 2.3 million ounces of gold in inferred mineral resources (11.7 million tonnes grading 6.09 g/t gold).

## MEADOWBANK MINING AT AMARUQ SATELLITE SINCE 2019

Eight years after beginning production and one year after hitting the 3-million-ounce landmark in 2018, the original Meadowbank mine - Agnico's first in Nunavut - exhausted its three open pits 50 kilometres north of Baker Lake. But a rich find back in 2013 revealed what is called the Amaruq Complex, 50 kilometres to the northwest of Meadowbank, and led the company to begin transitioning to production from Amaruq's Whale Tail deposit.

The project included building a 64-kilometre all-season road

from Amaruq to Meadowbank's mill, a fleet of specialized haul trucks plus truck shops, fuel farm and a second camp facility to serve the satellite mine.

Commercial production solely from Whale Tail was declared in September 2019, expected to yield 2.5 million ounces of gold through to 2026. Another Amaruq pit, the IVR, was added to the circuit at the end of 2020. Amaruq started underground development in 2021 with commercial output expected by late 2022.

Amaruq is a physically big deposit, according to Agnico Eagle's comprehensive website, comprising three significant zones - Whale Tail, Mammoth and IVR. Whale Tail alone has so far been defined over 2.3 kilometres of strike from surface to 915 metres but remains open at depth and along strike.

In 2022 Agnico expects to spend approximately \$10.4 million for 42,800 metres of drilling comprised of 20,200 metres of conversion drilling and 22,700 metres of exploration drilling. It's focused on testing open-pit extensions of mineralization and the potential for further underground deposits.

## STRIVING TO BE THE BEST, NOT THE BIGGEST

Much of the credit for Agnico Eagle's top-tier performance lies with former CEO and now Executive Chairman Sean Boyd. An accountant by profession, he joined the firm in 1985 when it had only one mine. By 1998, as CEO, he began to build, with patience and discipline, the roster Agnico holds today: 12 producing mines on three

continents, including the merger early in 2022 with Kirkland Lake Gold's three properties.

He's earned his share of accolades: the Globe and Mail ROB Magazine's Global Visionary of the Year CEO in 2020, The Northern Miner's Mining Person of the Year in 2007 and 2017 and made the list of The Best Performing CEOs in the World in the Harvard Business Review in 2010, 2016 and 2017. Most recently, Up Here Business magazine declared him its Northern Miner of the Year for 2022.

"We've never focused on trying to be the biggest gold mining company," he said in the magazine's fall issue. "We've just been focused on being the best gold mining company."

From his first foray into Nunavut in 2007 to scope out Meadowbank, Boyd felt comfortable in its challenging environment. He's chartered a course through some tough times (when Meadowbank lost its kitchen to a fire, it forced the camp to evacuate in the dead of winter), reduced Nunavut's chronic infrastructure shortage (Agnico has built some 200 kilometres of road - more than the Nunavut government), managed through the always-threatening Arctic deep cold, and of course, Covid. But through it all, he's held fast to three keys to success:

"We don't consider ourselves to be successful managers unless we're delivered on the expectations that our communities have, that our employees have, and that our shareholders have. And if we don't deliver for all three, then we've not been successful." **MN**



AGNICO EAGLE



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Underground mining at Diavik Diamond Mine, May 2022.

RIO TINTO / BILLBRADENPHOTO



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1051-43 Rycon Dr, Yellowknife, NT X1A 2V7

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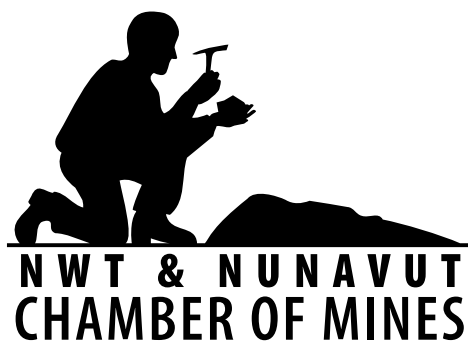
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# The North's Economic Foundation



► By Kenny Ruptash, President NWT & Nunavut Chamber of Mines

*The past two and a half years have been the most interesting years for the economy in my adult life.*

From the fixed to floating exchange rates of the 80s to the dotcom bubble of the late 90s / early 2000s and the housing bubble of the late 2000s, the world has never seen the economy as volatile as it has been since March 2020. Commodity pricing has reached all-time highs in some instances and fallen from the top as quickly as it rose in others. The federal government's early economic response was loved by some and hated by others, but I must say that the 2022 Federal Budget is the most progressive, mining-centric budget in modern history.

There has been a strong response from this government to address climate change and they have elected to pull some heavy financial levers to make the shift to green energy. Perhaps the most progressive and positive aspect of the Budget address is the recognition that decarbonization of the world is not possible without more mining. I recognize the irony of that statement but there are people in the country that do not understand that you must mine for a greener future.

The Canadian government has determined – as have other countries around the world – what minerals will be critical to Canada's contributions to a greener planet. The soon to be launched Canada Critical Mineral Strategy (CCMS) will advance 31 critical minerals, prioritized based on their potential for economic growth, manufacturing needs, employment opportunities and overall contribution to global decarbonization.

The budget incentivizes exploration and development of critical minerals using tools such as an enhanced Mineral Exploration Tax Credit, significant contributions to infrastructure and exploration, and regulatory reform intended to help streamline the process and accelerate projects associated with the decarbonization initiative.

The North is poised to capitalize on every aspect of this budget. The North makes up one third of Canada's land mass and boasts enormous geological diversity and potential. Our Northern geological surveys tell us we have already identified 22 of the 31 critical minerals that are on

Canada's list and the 2022 budget has the potential to bolster the exploration sector in the north.

New infrastructure will not only support the development of minerals listed on the CCMS, but it will also support and promote the development of minerals critical to Canada's, and the Western World's economies. Minerals that have helped shape the economic landscape of the north for the past 25 years like diamonds, gold and iron will continue to provide a model which critical minerals can emulate. Our modern mines have made great strides in supporting the development of Indigenous and northern residents and businesses and giving the North an excellent foundation to now participate meaningfully in the CCMS. That is something that should be celebrated.

As a father of three young third-generation northern born kids, I'm encouraged with the government's recognition of the importance of the mineral resource sector. And, I am very happy to be the president of an organization that represents such an important part of the North. **MN**





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