

# Unlocking our Potential



JUNE 2022

## Critical minerals to open **New Chapter** in NWT Mining

Five NWT Projects  
Destined to be a  
part of Canada's  
Critical Mineral  
Supply Chain

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# CONTENTS

- 4** Critical Minerals to Open New Chapter in NWT Mining
- 8** NewsBRIEFS
- 10** Nechalacho: A First for NWT Mining
- 13** Five NWT Projects Destined to be a part of Canada's Critical Mineral Supply Chain
- 15** Select Mineral Deposits of the Northwest Territories, Canada
- 17** What's that Earth Worth
- 19** The Last Word

Cover photo: Cheetah Resources - Nechalacho open pit mining  
Cover photo credit: billbradenphoto

**Hon. Caroline Wawzonek**

MINISTER OF INDUSTRY,  
TOURISM AND INVESTMENT  
NORTHWEST TERRITORIES



## MESSAGE FROM THE MINISTER

It's an exciting time to be promoting mineral exploration and development in the Northwest Territories!

As the global mining industry resets post COVID, with an emphasis on ESG and Critical Minerals, the NWT is preparing to open a new chapter in its rich mining history (see page 4).

The Nechalacho story (on page 10) demonstrates how the NWT can be a leading contributor in both areas.

Meanwhile, four additional projects are waiting in the wings. (You'll find a summary beginning on page 13).

But perhaps the most fitting exclamation point to all of this is that we are welcoming Fireweed Zinc Ltd. to the NWT's mining community; and together with the Indigenous governments and companies that are full partners in our mining industry, we look forward to once-again advancing work on the Mactung (tungsten) deposit along the NWT – Yukon border.

In all of this, we are not looking past gold or diamonds, or any of the other metals that have brought us to where we are today. Their potential remains high across the board and we continue to see positive results as deposits grow.

We will continue to build on the Indigenous partnerships, exploration, proven geoscience and mining success that have positioned us to take our mineral resources potential to the next level.

I hope this newsletter gives you a glimpse of just how great that potential is.



# Critical minerals to Open New Chapter in NWT Mining

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*Over half of the 31 minerals already considered critical to domestic, industry, national security and emissions reduction can already be found within the Northwest Territories.*

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Gold, base metals and diamonds have long been the lifeblood of mining in the Northwest Territories.

But, as companies and countries around the world move to secure supplies of critical and strategic minerals, doors are opening for NWT projects such as Nechalacho, NICO, Pine Point and Prairie Creek – and a whole new chapter is beginning to unfold in the territory's storied mining legacy.

As the Government of Canada takes steps to develop a Critical Minerals Strategy, over half of the 31 minerals already considered critical to domestic, industry, national security and emissions reduction can already be found within the Northwest Territories.











Cheetah Resources: Sorter operator Jeremy Catholique on TOMRA sensor  
Photo credit: billbradenphoto

According to the International Energy Agency, the total market size of critical minerals needed for the green energy transition could grow almost seven times between 2020 and 2030.

And the NWT's Minister of Industry, Tourism and Investment, Caroline Wawzonek says this creates new space for small-scale domestic mining. Given the current post-pandemic and geopolitical climate, she sees this as an opportunity to diversify the NWT's mining portfolio with minerals like zinc, lithium, copper and rare earths.

"We have an opportunity to add to our rich and long-standing mining story, she told delegates at last November's Yellowknife Geoscience Forum.

"We are not looking past gold or diamonds, or any other metals that have brought us to where we are today. Instead, we want to build on the history of exploration, proven geoscience and mining success that has been realized so that we can take our mineral resources potential to the next level."

Like Canada, the Northwest Territories is now developing an action plan to promote the NWT's deposits of critical minerals and to increase exploration and geological work.

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*"We have an opportunity to add to our rich and long-standing mining story"*

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Last fall, the Department of Industry, Tourism and Investment brought together industry, academia and Indigenous governments to workshop how critical minerals can be responsibly leveraged as a commodity.

In the legislature, policy is being modernized and regulations for a new Mineral Resources Act and the Public Land Act will help to bring certainty and clarity to the regulatory systems that govern land use. Meanwhile, investments continue to address the territory's infrastructure deficit.

On November 30, 2021, the Tłıchǫ Highway opened providing new access to a resource-rich corner of the Tłıchǫ region for future exploration. And, while competition for investors is fierce in the international mining industry, the Northwest Territories is well placed not only to become a supplier of critical minerals, but to be a leader in how they are resourced in an environmentally and socially responsible way.

The NWT model, with resource royalty-sharing, socio-economic and benefit agreements, regulatory

co-management and collaborative legislation development, is at the forefront of Indigenous participation in mining, exploration and development in Canada - and likely globally.

Perhaps more than anywhere, the NWT understands the relationship between resource development and socio-economic wellbeing. It's what sets it apart from global competitors — and what makes the territory a great place to invest and do business.

# NEWS BRIEFS

NOVEMBER 10,  
2021

In a virtual workshop that gathered over 60 delegates from all levels of government, industry and academia, the GNWT's Department of Industry, Tourism and Investment (ITI) begins an important discussion on the future of critical minerals exploration and development in the Northwest Territories.

"At an idealistic level, you are here today for nothing less than a conversation about the future of our economy, and the place of the mineral resource sector within it," Minister Wawzonek says in her welcoming remarks.

NOVEMBER 30,  
2021

The Tłıchq Highway is officially opened. The 97 km highway west of Yellowknife provides access to a resource-rich corner of the Tlıcho region for future exploration while connecting the small community of Whatı to the NWT's highway grid.

In addition to Nighthawk Gold's Indin Lake gold property, the highway is a key enabler for Fortune Minerals' NICO critical minerals project and will provide the means for cobalt concentrate to be trucked to the railway head in Hay River and then on to Alberta for processing.

DECEMBER 9,  
2021

A second round of applications is announced for the GNWT's Mining Incentive Program (MIP). Twenty projects are set to benefit from the program in 2021-22. The GNWT will invest \$1.5 million in support of both early-stage and advanced exploration projects in the NWT.

In the eight years it has been in effect, nearly \$3 million has been awarded to 101 projects, generating almost \$12 million in exploration. Funding recipients that credit the MIP as contributing to discoveries include Gold Terra, DEMCo, Evrim Resources, StrategX Elements, North Arrow Minerals and 60 North Gold.

DECEMBER 21,  
2021

Diamonds de Canada (DdC) is awarded the exclusive right to bring the iconic Polar Bear Diamond trademark back to the market. The company will now cut, polish and exclusively trademark these NWT-mined diamonds.

With a new generation of consumers interested in knowing the origin of the goods they

procure, DdC plans to nurture an exclusive, high quality and ethically sourced diamond that underpins the NWT's reputation as a leader in environmentally and socially responsible mining practices, with a strong emphasis on close collaboration with Indigenous communities in whose territory diamonds are found.

MARCH 31,  
2022

As the NWT positions itself to meet the critical mineral needs of the future, the GNWT's Minister of Industry, Tourism and Investment, Caroline Wawzonek, speaks at the 21st annual Arctic Energy & Resource Symposium in Calgary, highlighting the GNWT's work towards attracting

environmental, social and governance (ESG) conscious investors and project developers.

"Beyond our incredible resources, it's what sets us apart from global competitors, and what makes the NWT a unique place to invest and do business," she notes.



APRIL 7, 2022

The GNWT releases a report documenting the themes of its proposed Critical Minerals Plan for the NWT. It summarizes why a plan is needed, a history of mining and current advanced projects,

a summary of the critical minerals that occur in the NWT and the advantages of exploring and developing projects in the NWT.

APRIL 13, 2022

The Northwest Territories Geological Survey (NTGS) releases the 2021 NWT Mineral Exploration Overview. Despite the pandemic, newly staked claims and several exploration and mining projects rallied through 2021 creating a favourable environment for future ventures.

A total of 68 new claims were staked in 2021 and 20 prospecting permits were active. Significant progress was made on a number of advanced exploration projects including Pine Point, Prairie Creek and NICO.

APRIL 19, 2022

U.S. Senator Joe Manchin (D-West Virginia), Chairman of the Senate Energy and Natural Resources Committee, convenes a roundtable in Calgary focused on opportunities in Canada's critical minerals sector and what can be done to secure supply chains for these essential minerals to the green economy and North America's energy security future.

ITI Deputy Minister Strand showcases the NWT as a provider of critical minerals and highlights the NWT's geological potential, as well the world-leading Indigenous participation that exists in the NWT mining sector and industries, and the collaborative model for exploration and development that has evolved from the NWT's 25-year history in diamond exploration and production.

JUNE 1, 2022

In a statement to the NWT's Legislative Assembly, Minister Caroline Wawzonek recognizes the Gahcho Kué diamond mine for receiving the prestigious Towards Sustainable Mining Excellence Award from the Mining Association of Canada.

Gahcho Kué's commitment and focus on community engagement and environmental stewardship is a reflection of the relationships

and respect that exist between NWT's mining industry and Indigenous governments and organizations.

"This award to an NWT-based project highlights to investors the ESG and ESG-I practices that set the NWT apart from other jurisdictions," she notes. "The global industry is catching up to the NWT and practices that we have honed over nearly three decades."

JUNE 2, 2022

The GNWT accepts a letter of intent from Fireweed Zinc to purchase the Mactung deposit near the NWT-Yukon border. Tungsten prices have improved significantly since 2015 when the GNWT took ownership of the Mactung deposit

as part of the insolvency of North American Tungsten Limited. The goal was always to return the property to the private sector once its commodity value recovered.



# Nechalacho:

## A First for NWT Mining



Photo credit: billbradenphoto

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*As home to Canada's first rare earth mining operation, the Northwest Territories' place on the rare earth supply chain has become a reality.*

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In mid-October of 2021, after five months of round-the-clock mining, crushing and sorting, 500 tonnes of high-grade rare earth elements (REE) concentrate from the Nechalacho rare earth mine landed at the NWT Marine Transportation Services dock in Hay River destined for processing in Saskatoon and Norway. With that barge load of brick-red bastnaesite concentrate, the NWT has taken its place on the supply chain of both light and heavy REE to the world.

"It sends a signal that Canada is indeed a serious player in the international drive toward a sustainable, reliable, responsibly mined source of critical rare earth elements independent of China and also of Russia," said NWT Minister of Industry, Tourism and Investment Caroline Wawzonek, at the Arctic Energy and Resource Symposium in Calgary this March.

Bringing Canada's first REE mine into production was the culmination



of four years of planning to bring a big vision to fruition, says Geoff Atkins, Managing Director of the Australian REE developer, Vital Metals Ltd. (ASX: VML I OTCQB: VTMXF). Atkins leads a team of seasoned professionals in the production and marketing of rare earths, with the goal “to become the lowest cost producer of mixed rare earth oxide outside of China by developing one of the highest-grade rare earth deposits in the world, and the only rare earth project capable of beneficiation solely by ore sorting”.

The polymetallic Nechalacho deposit, 110 kilometres southeast of Yellowknife, was discovered 50 years ago. But it wasn’t until 2019, after a global search to identify viable REE deposits, that Vital Metals secured mining rights and designed a staged, multi-year strategy to bring Nechalacho’s potential to market. Vital set up its production subsidiary, Cheetah Resources Corporation, in Yellowknife in 2019 to initially mine the North T Zone and prepare the site for eventual expansion to the much larger Tardiff Zone.

“To do all of that in two years when we’ve been managing remotely, that’s something I’m pretty proud of,” Atkins recently told *Up Here Business* magazine. “We’ve been able to do that in the middle of a pandemic when we haven’t been able to travel for 18 months. Just to be able to get a mining operation up and running is a highlight.”

That’s not all the Vital team has accomplished. To achieve its target of supplying mixed REE concentrate to end-stage refiners, Vital Metals Canada Ltd. is investing \$20 million in a rare earths processing facility in Saskatoon. There, Nechalacho’s concentrate will be converted to a

mixed rare earth carbonate. This will be the feedstock for REEtec, the Norwegian firm which will separate the carbonate into individual rare earth oxides. Production from the Saskatoon facility is expected by the fall of 2022, with the goal of 2,000 tonnes of contained total rare earth oxides (TREO) annually by 2024.

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*“It sends a signal that Canada is indeed a serious player in the international drive toward a sustainable, reliable, responsibly mined source of critical rare earth elements independent of China and also of Russia,”*

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“This is a great-news story for the NWT,” says David Connelly, Vice President of Strategy and Corporate Affairs for Cheetah Resources Ltd. “Cheetah and Vital have demonstrated a strong commitment to Environmental, Social and Corporate Governance values and strive to make this a key measurement of our ongoing success in the NWT and the rest of Canada.”

Connelly is especially pleased with the engagement in Nechalacho from neighbouring Indigenous communities, and from the region’s business community. “This is the first project we know of in Canada where an Indigenous company, the Yellowknives Dene’s Det’on Cho Corporation, is contracted to do mining operations on its own traditional territory,” says Connelly.

Cheetah employed a seasonal workforce of 58 during 2021, with some 70 per cent of Indigenous heritage from 10 communities. As impressive is the fact that 162 NWT businesses supported Cheetah’s first year of operations, with 85 per cent of its buying sourced from Indigenous suppliers.

Meanwhile, on the environmental front, Cheetah and Vital have strategically gone against the grain of the typical large-scale northern mining venture. Their approach: start small, go in stages, and be innovative to reduce or eliminate hazards.

Cheetah Resources is initially mining the North T Zone, hosting a high-grade resource of 101,000 tonnes at 9.01% LREO (light rare earth oxides) making it one of the highest-grade rare earths deposits in the world. At the heart of the project is the TOMRA sensor-based sorter, a compact, portable machine that uses X-ray and air-jet technology to separate and concentrate the heavier bastnaesite ore from the lighter quartz host rock. It has eliminated tailings and chemicals and greatly reduced the use of water and the project’s land and carbon footprints.

Cheetah has trained five Indigenous operators to run the computerized TOMRA sorter, which was supported in 2021 with a \$1.26 million contribution from CANNOR, the Canadian Northern Economic Development Agency. They will continue sorting operations from ore that was stockpiled during the 2021 season. Mining at the North T pit will resume in 2023 with a revised mine plan, as an expanded, richer resource was unexpectedly realized in 2021.



*“This is the first project we know of in Canada where an Indigenous company, the Yellowknives Dene’s Det’on Cho Corporation, is contracted to do mining operations on its own traditional territory,*

This is all in preparation for a future move south (a couple of kilometres) to the Tardiff Zone, a mammoth, world-class resource of 94.7 million tonnes at 1.46% REO (measured, indicated and inferred). Tardiff has been extensively explored and Cheetah continues with winter definition drilling programs.

“This is a multi-generational project that can create decades of employment and business opportunity for the NWT,” says Connelly. Development for year-round mining could begin as early as 2024, supported by conventional ice road, barge and air services from Yellowknife and Hay River.

Today, as the Nechalacho and Saskatoon projects evolve, Vital Metals and Cheetah Resources are monitoring international markets and events. Driven in large part by decades of unstable Chinese dominance of global rare earth supply, their goal to guarantee a responsibly sourced supply of REE feedstock independent of China has been even further amplified by Russia’s aggressive moves in Europe.

As home to Canada’s first rare earth mining operation, the Northwest Territories’ place on the rare earth supply chain has become a reality.



Cheetah Resources: ESG Cheetah Deton Cho-Nahanni Signing



Photo credits: billbradenphoto

# 5

## NWT PROJECTS

Destined to be a part of Canada's Critical Mineral Supply Chain

Essential to renewable energy and clean technology — for everything from batteries to magnets, solar and wind — minerals like Lithium, Cobalt, Zinc, Copper and Rare Earth Elements (REEs) are now also considered to be critical to Canada's economic security.

But supply chains globally are finding it a challenge to source these critical minerals. Here are five projects (and one more) that are in early mining and advanced exploration phases; and have the potential to place the Northwest Territories at the forefront as a North American supplier.

### 1 RARE EARTH ELEMENTS

NECHALACHO MINE  
CHEETAH RESOURCES

Mining for Rare Earth Elements (REE) is underway at the Nechalacho deposit at Thor Lake. This summer will see Cheetah Resources mine rare earth concentrate for the second time at the site located 100 km Southeast of Yellowknife. The mine aims to yield 5,000 tonnes of rare earth oxides annually by 2025. The mixed rare earth oxides from Nechalacho could be produced at low costs rivaled only by China. The company is building a processing plant in Saskatoon to further refine rare earth concentrate from its NWT project.

### 2 COBALT, GOLD, BISMUTH, COPPER

NICO PROJECT  
FORTUNE MINERALS LTD.

Fortune Minerals Ltd.'s NICO Project is recognized as one of the most advanced Cobalt development assets outside of the Democratic Republic of the Congo. With more than \$130 million invested in the project to date, the company says it is shovel ready to build itself as a primary Canadian producer of Cobalt, Gold, Bismuth, Copper from reserves that could last up to 20 years. For now Fortune Minerals is working to finance a mine and mill in the NWT and a processing plant in Alberta. Located near the community of Whati in the Tłıchq region, the newly opened Tłıchq highway means that once a 50-kilometer road is built from the mine to Whati, the product can be trucked to railways at Enterprise and Hay River.





## ZINC, LEAD

OSISKO METALS

### PINE POINT MINING CAMP

Pine Point is an old mine looking for a new chance at life after a fresh look at the site's deposits found the area still holds a large near-surface resource base, including 47 known Lead-Zinc deposits. Located between Hay River to the west and Fort Resolution to the east, the mine was closed in the late 80s and is still in the early stages of being reopened by Osisko Metals. The project is undergoing environmental assessment while also focusing on additional exploration, infill drilling and water management. The company plans to have a new mineral resource estimate and feasibility study when a current drilling pilot finishes in 2023. For now, it's releasing an updated preliminary economic assessment this year.



## ZINC, SILVER

NORZINC LTD.

### PRAIRIE CREEK PROJECT

NorZinc Ltd. is still scouting out financing for early stage exploration at the Prairie Creek Zinc and Silver project. But for this summer it's planning a 5,300 meter surface exploration drill program. Exploration efforts are projecting a mine life of 20 years, up from a previous projection of 15 years. That's at a rate of 2,400 metric tons per day. Because the mine is situated inside Canada's Nahanni National Park Reserve, permitting is rigorous and the company is facing setbacks to the building of an all-season access road. It's early days for Prairie Creek, but the Zinc is high grade and having silver in the mix makes for favourable geological conditions.



## LITHIUM

FORMOST LITHIUM RESOURCES  
AND TECHNOLOGY LTD.

### HIDDEN LAKE

The Hidden Lake Lithium Property is host to numerous Lithium-bearing spodumene pegmatite dykes, located just 45 km northeast from Yellowknife on the Ingraham Trail. So far it has targeted drilling at four of those dykes, drilling ten holes to a depth of 1,079 meters. Under direction from a new president and CEO, Formost Lithium Resources and Technology Ltd. (formerly known as FAR Resources) is mobilizing a drill rig at Hidden Lake. It plans to drill to depths of at least 1,100 meters to confirm deeper mineral continuity of the in-demand battery metal. Future exploration by the company will show the grade and tonnage of the resource.

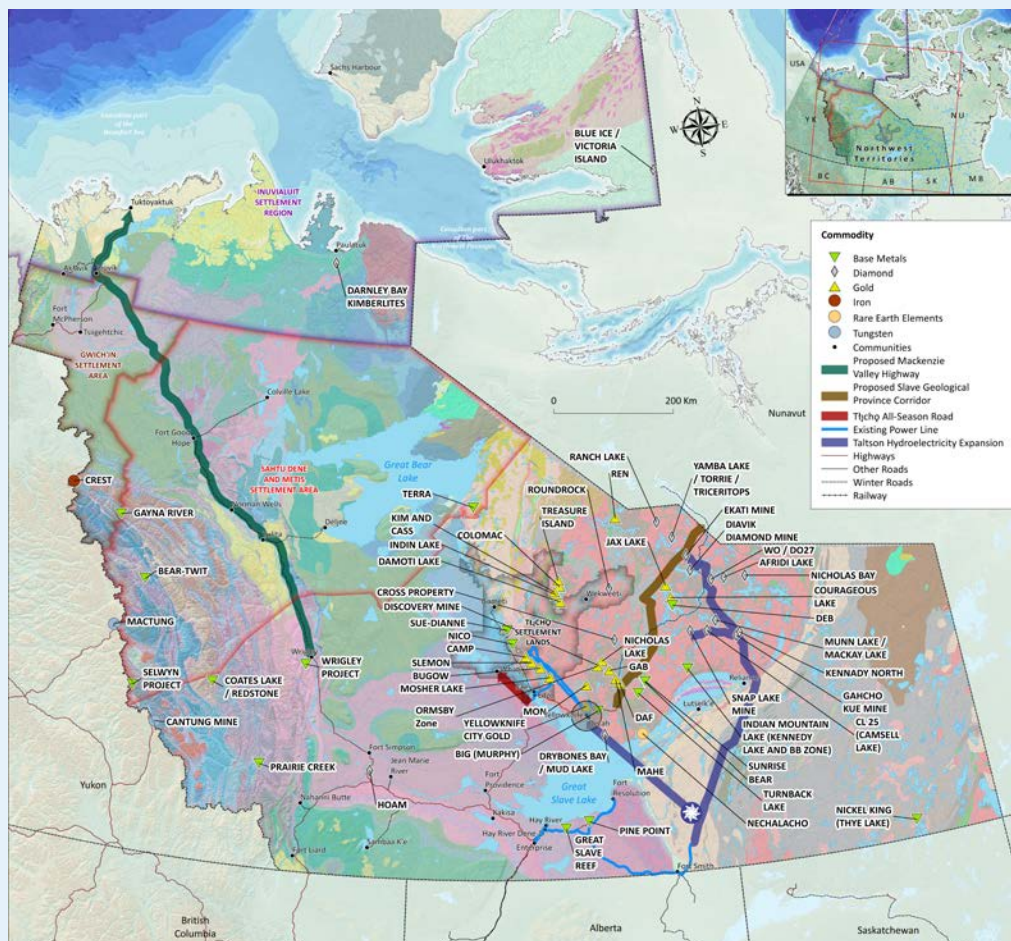
## ...AND THIS JUST IN

### FIREWEED ZINC MACTUNG TUNGSTEN PROJECT

The Mactung Tungsten Project is one of the largest and highest grade Tungsten deposits in the world and one of the only ones outside of China with the potential to scale. It is located between the Northwest Territories and Yukon in the traditional areas of the Kaska Dena, Na-Cho Nyak Dun (Yukon) and the Sahtu Settlement Area (NWT). A letter of intent was recently signed with the Government of the Northwest Territories. With promising geology, this project is set to showcase how projects can advance with ESG-I guidance as it moves forward on traditional Indigenous lands.

# Select Mineral Deposits of the Northwest Territories, Canada

| PROJECT NAME        | COMMODITY                      | STATUS                           | PROJECT OWNER / MANAGER   | WEBSITE AND/OR E-MAIL ADDRESS                             | *RESOURCE CATEGORY              | **TOTAL RESOURCE   | *** GRADE  |
|---------------------|--------------------------------|----------------------------------|---|---|---------------------------------|--|--|
| DIAMIK DIAMOND MINE | DIAMOND                        | PRODUCER                         | RIO TINTO GROUP   | WWW.RIOTINTO.COM/EN                                       | PRV + PRB (DEC, 2018)           | 15 MT  | 2.8 CT/T   |
| EKATI MINE          | DIAMOND                        | PRODUCER                         | 89.9% ARCTIC CANADIAN DIAMOND COMPANY LTD. / 11.1% STEWART BLUSSON          | WWW.ARCTICCANADIAN.CA                                     | PRV + PRB (JAN 2017)            | 68.9 MT  | 1.5 CT/T   |
| GAHCHO KUE MINE     | DIAMOND                        | PRODUCER                         | 51% DE BEERS CANADA INC.; 49% MOUNTAIN PROVINCE DIAMONDS INC.               | WWW.CANADA.DEBEERSGROUP.COM<br>WWW.MOUNTAINPROVINCE.COM   | IND/INF/PRB (MARCH 2020)        | 2.2 MT (IND); 13.6 MT (INF); 33.0 MT (PRB)                                       | 1.26 CPT (MEAS); 1.43 CPT (INF); 1.60 CPT (PRB)  |
| NECHALACHO          | RARE EARTH ELEMENTS, BERYLLIUM | DRILLED; ADVANCED PROJECT        | AVALON ADVANCED MATERIALS INC. / CHEETAH RESOURCES LTD. (VITAL METALS LTD.) | WWW.AVALONADVANCEDMATERIALS.COM<br>WWW.VITALMETALS.COM.AU | MEAS/IND/INF/PRV/PRB (MAY 2013) | 10.86 MT (MEAS); 110.40 MT (IND); 183.37 MT (INF); 3.68 MT (PRV); 10.93 MT (PRB) | 1.67% TREO (MEAS); 1.49% TREO (IND); 1.27% TREO (INF); 1.7160% TREO (PRV); 1.6923% TREO (PRB); 0.38% HREO (MEAS); 0.24% HREO (IND); 0.17% HREO (INF); 0.4681% HREO (PRV); 0.4506% HREO (PRB) |
| NICO                | COBALT, BISMUTH, GOLD, COPPER  | DRILLED; ADVANCED PROJECT        | FORTUNE MINERALS LTD.   | WWW.FORTUNEMINERALS.COM                                   | PRV + PRB (APRIL 2014)          | 33 MT  | 1.03 G/T AU + 0.11% CO + 0.14% BI + 0.04% CU   |
| PINE POINT          | ZINC, LEAD                     | PAST PRODUCER                    | PINE POINT MINING LTD.  | WWW.OSISKOMETALS.COM                                      | IND/INF; OP/UG (2020)           | OP-12.9 MT (IND); 27.2 MT (INF); UG -10.5 MT (INF)                               | OP-1.73% PB (IND); 4.56% ZN (IND); 1.37% PB (INF); 4.11% ZN (INF); UG-3.3% PB (INF); 6.93% ZN (INF)  |
| PRAIRIE CREEK       | ZINC, LEAD, SILVER             | DRILLED; ADVANCED PROJECT        | NORZINC LTD.  | WWW.NORZINC.COM   | PRV + PRB (AUG 2017)            | 8.1 MT   | 8.6% ZN, 8.1% PB, 124 G/T AG   |
| SELWYN PROJECT      | ZINC, LEAD, SILVER             | DRILLED                          | SELWYN CHIHONG MINING LTD.  | WWW.SELWYNCHIHONG.COM                                     | IND (AUG. 2012)                 | 185.6 MT   | 5.20% ZN, 1.79% PB   |
| MON                 | GOLD                           | PAST PRODUCER / LICENSED TO MINE | SIXTY NORTH GOLD MINING LTD. / NEW DISCOVERY MINES LTD.                     | WWW.SIXTYNORTHGOLD.COM                                    | HISTORIC                        | 10,070 T   | 10 G/T (RECOVERED)   |





**LEGEND**

\* **RESOURCE CATEGORY:** Indicated (Ind); Inferred (Inf); Measured (Meas); Proven Reserve; Open pit (OP); (Prv); Probable Reserve (Prb); Historic (non-compliant) ~; Preliminary Sample Result (Prelim); Underground (UG)

\*\* **TOTAL RESOURCE:** tonnes (t); million tonnes (Mt); kilograms (kg)

\*\*\* **GRADE:** grams per tonne (g/t); carats per tonne (ct/t)

| PROJECT NAME  | COMMODITY                        | STATUS                        | PROJECT OWNER / MANAGER                                | WEBSITE AND/OR E-MAIL ADDRESS | *RESOURCE CATEGORY                      | **TOTAL RESOURCE  | *** GRADE  |
|---|----------------------------------|-------------------------------|--|-------------------------------|---|---|--|
| COLOMAC (INDIN LAKE)  | GOLD                             | DRILLED; ADVANCED PROJECT     | NIGHTHAWK GOLD CORP.                                   | WWW.NIGHTHAWKGOLD.COM         | IND/INF; OP/UG (MARCH 2021)             | OP-15.2 MT (IND); 219,000 T (INF); UG-19.9 MT (IND); 9.49 MT (INF)  | OP-1.64 G/T (IND); 1.47 G/T (INF); UG-1.97 G/T (IND); 1.97 G/T (INF)   |
| DAMOTI LAKE (INDIN LAKE)  | GOLD                             | DRILLED; ADVANCED PROJECT     | NIGHTHAWK GOLD CORP.                                   | WWW.NIGHTHAWKGOLD.COM         | INF; UG SELECTIVE (MARCH 2021)          | UG- 736,000 T (INF)   | UG- 4.97 G/T (INF)   |
| GOLDCREST (INDIN LAKE)  | GOLD                             | DRILLED; ADVANCED PROJECT     | NIGHTHAWK GOLD CORP.                                   | WWW.NIGHTHAWKGOLD.COM         | IND/INF; OP/UG (MARCH 2021)             | OP-9.986 MT (IND); 554,000 T (INF); UG-15.904 MT (IND); 5.158 MT (INF)  | OP- 1.70 G/T (IND); 1.75 G/T (INF); UG- 2.20 G/T (IND); 2.06 G/T (INF)   |
| GRIZZLY BEAR (INDIN LAKE)                                       | GOLD                             | DRILLED                       | NIGHTHAWK GOLD CORP.                                   | WWW.NIGHTHAWKGOLD.COM         | IND/INF; OP/UG (MARCH 2021)             | 105,400 T   | 14.09 G/T  |
| 24-27 (INDIN LAKE)  | GOLD                             | DRILLED                       | NIGHTHAWK GOLD CORP.                                   | WWW.NIGHTHAWKGOLD.COM         | INF; OP/UG (MARCH 2021)                 | OP-424,000 T; UG-184,000 T  | OP-1.83 G/T; UG-1.80 G/T   |
| COURAGEOUS LAKE   | GOLD                             | PAST PRODUCER                 | SEABRIDGE GOLD INCORPORATED                            | WWW.SEABRIDGEGOLD.NET         | PRV/PRB/ MEAS/IND/ INF (APRIL 2020)     | 12 MT (PRV); 79 MT (PRB); 13,401 MT (MEAS); 93,914 MT (IND); FAT DEPOSIT 48,963 MT (INF), WALSH LAKE 4.624 MT (INF) | 2.41 G/T (PRV); 2.17 G/T (PRB); 2.53 G/T (MEAS); 2.28 G/T (IND); FAT DEPOSIT 2.18 G/T (INF), WALSH LAKE 3.24 G/T (INF)   |
| YELLOWKNIFE CITY GOLD (SAM OTTO, MISPICKEL, CRESTAURUM, BARNEY) | GOLD                             | PAST PRODUCER, DRILLED        | GOLD TERRA RESOURCE CORP.                              | WWW.GOLDTERRACORP.COM         | INF; OP+UG (MARCH 2021)                 | 24.31 MT (INF)  | 1.54 G/T (INF)   |
| DISCOVERY MINE (BRUCE ZONE - YELLOWKNIFE GOLD)                  | GOLD                             | PAST PRODUCER                 | GOLDMINING INC.  | WWW.GOLDMINING.COM            | IND/INF; OP/UG (MARCH 2019)             | OP-244,000 T (IND); 591,000 T (INF); UG- 37,000 T (IND); 502,000 T (INF)  | OP- 1.85 G/T (IND); 1.80 G/T (INF); UG- 2.87 G/T (IND); 2.94 G/T (INF)   |
| NICHOLAS LAKE (YELLOWKNIFE GOLD)                                | GOLD                             | DRILLED                       | GOLDMINING INC.  | WWW.GOLDMINING.COM            | IND/INF; OP/UG (MARCH 2019)             | OP-1.550 MT (IND); 1.073 MT (INF); UG- 10,000 T (IND); 687,000 T (INF)  | OP- 2.72 G/T (IND); 2.15 G/T (INF); UG- 2.95 G/T (IND); 3.59 G/T (INF)   |
| ORMSBY ZONE (YELLOWKNIFE GOLD)                                  | GOLD                             | DRILLED                       | GOLDMINING INC.  | WWW.GOLDMINING.COM            | MEAS/IND/ INF; OP/UG (MARCH 2019)       | OP- 1.176 MT (MEAS); 10,568 MT (IND); 1.382 MT (INF); UG- 524,000 T (IND); 1.423 MT (INF)                           | OP- 2.12 G/T (MEAS); 2.25 G/T (IND); 2.30 G/T (INF); UG- 3.41 G/T (IND); 3.69 G/T (INF)  |
| KENNADY NORTH   | DIAMOND                          | DRILLED; ADVANCED EXPLORATION | KENNADY DIAMONDS INC. (MOUNTAIN PROVINCE DIAMONDS INC. | WWW.MOUNTAINPROVINCE.COM      | MEAS/IND/ INF (MAY 2019)                | KELVIN - 8.50 MT (IND); FARADAY 2 - 2.07 MT (INF); FARADAY 1-3 - 1.87 MT (INF)                                      | KELVIN - 1.60 CT/T (IND); FARADAY 2 - 2.63 CT/T (INF); FARADAY 1-3 - 1.04 CT/T (INF)   |
| COATES LAKE / REDSTONE  | COPPER, SILVER                   | DRILLED                       | REDBED RESOURCES CORP.                                 | NOT AVAILABLE                 | HISTORIC                                | 33.4 MT   | 3.92 % CU, 11.3 G/T AG   |
| SUE-DIANNE  | COPPER, SILVER, GOLD             | DRILLED                       | FORTUNE MINERALS LTD.                                  | WWW.FORTUNEMINERALS.COM       | IND (MAR. 2008)                         | 8.444 MT (IND); 1.620 MT (INF)  | 0.80% CU (IND); 0.07 G/T AU (IND); 3.2 G/T AG (IND); 0.79% CU (INF); 0.07 G/T AU (INF); 2.4 G/T AG (INF)   |
| DEB   | COPPER, ZINC, SILVER             | DRILLED                       | SEABRIDGE GOLD INC.                                    | WWW.SEABRIDGEGOLD.NET         | INF                                     | 1.01 MT   | 0.83% CU, 2.96% ZN, 21.9 G/T AG  |
| NICKEL KING (THYE LAKE)   | NICKEL, COPPER, COBALT           | DRILLED; ADVANCED EXPLORATION | CORNISH METALS INC.                                    | WWW.CORNISHMETALS.COM         | IND (JUNE 2010)                         | 11.1 MT (IND); 33.1 MT (INF)  | 0.40% NI (IND); 0.10% CU (IND); 0.018% CO (IND); 0.36% NI (INF); 0.09% CU (INF); 0.017% CO (INF)   |
| TERRA   | SILVER, COPPER, BISMUTH, GOLD    | PAST PRODUCER                 | DEMCO LTD.   | WWW.DENENDEHINVESTMENTS.CA    | HISTORIC                                | 27,769 T; (+ 453,592 T TAILINGS)  | 1028 G/T AG; (+ 0.5% NI, 0.5% CU IN TAILINGS)  |
| BEAR-TWIT   | LEAD, ZINC (AG, CU, SB, CD)      | DRILLED                       | EAGLE PLAINS RESOURCES LTD.                            | WWW.EAGLEPLAINS.COM           | INF                                     | 7.26 MT - 9 MT  | 5.4% ZN, 2.6% PB, 17.1 G/T AG  |
| SUNRISEW  | SILVER, ZINC, LEAD, COPPER, GOLD | DRILLED                       | SSR MINING INC.  | WWW.SSRMINING.COM             | IND/ INF (SEPT. 2003)                   | 1.522 MT (IND); 2.555 MT (INF)  | 2.39% PB (IND); 5.99% ZN (IND); 0.08% CU (IND); 262 AG G/T (IND); 0.67 AU G/T (IND); 1.92% PB (INF); 4.42% (INF); 0.075 (INF); 169 AG G/T (INF); 0.51 G/T AU (INF) |
| CANTUNG MINE  | TUNGSTEN                         | PAST PRODUCER                 | GOVERNMENT OF CANADA                                   | NOT AVAILABLE                 | HISTORIC - PRB/IND/INF (SEPTEMBER 2014) | 1.82 MT (PRB); 3.84 MT (IND); 1.37 (INF)  | 0.81% WO3 (PRB); 0.97 % WO3 (IND); 0.8% WO3 (INF)  |
| MACTUNG   | TUNGSTEN                         | DRILLED; ADVANCED EXPLORATION | GOVERNMENT OF NORTHWEST TERRITORIES                    | NOT AVAILABLE                 | IND/INF (APRIL 2010)                    | 33MT (IND); 11.9MT (INF)  | 0.88% WO3 (IND); 0.78% WO3 (INF)   |



Photo credit: billbradenphoto

# What's that Earth Worth?

GNWT samples material from first Rare Earth Elements mine in the Northwest Territories

**The shipment of 501 sacks of rare earth concentrate barged across Great Slave Lake from the Nechalacho Mine last fall marked a number of firsts.**

Not only were these the first Rare Earth Elements (REE) mined in the Northwest Territories, but the milestone also made Cheetah Resources Corp. (a Canadian subsidiary of Australian company Vital Metals Ltd.), the first producer of REE in Canada.

Now the territorial government is working for the first time to calculate a value for the group of 17 chemical elements — used in electronics, clean energy, aerospace and defence industries — to enable royalty collection.

“The extraction of Rare Earth Elements is uncommon in Canada and there is no established trading hub for this set of commodities to establish





Photo courtesy of Hendrik Falck

their worth,” says Hendrik Falck, Manager of Geology and Resource Royalty Policy for the GNWT Department of Industry, Tourism and Investment (ITI).

So, in October 2021, staff from ITI’s Diamonds, Royalty and Financial Analysis division took 500 grams (about two baking cups) of the red earth from each sack.

Territorial mining legislation mandates that the government verify reported values of all exported mineral resources. But because the value of REE is decided after the elements are separately processed from the raw concentrate, existing models for valuing minerals like gold, copper or zinc aren’t applicable here.

There’s also a lack of processing capacity for REE outside of China and Australia, Falck says. REE, which are on Canada’s current list of critical minerals, produce strong and lightweight magnetic metals that are temperature resistant. Some have fluorescence and light emission properties used, for example, in lasers.

A valuation of the rare earth concentrate from Nechalacho is to be done by a contracted market

intelligence firm. Results will set national precedence for how REE are valued in Canada, Falck says.

That first mined rare earth concentrate is heading for processing at a hydrometallurgical plant being constructed by Vital Metals Ltd. in Saskatoon. Commercial production at the plant is expected to start this year with an annual processing target of 1,000 tonnes of rare earth carbonate. That’s a middle stage product in the refining process.

Meanwhile, at Nechalacho, Cheetah Resources Corp. plans to see production increase to 5,000 tonnes of rare earth oxide mined annually by 2025.

## LAST WORD

# Keynote to the NWT Critical Mineral Workshop (EXCERPT)

Electric Vehicles (EVs) have had a phenomenal growth; a rate of over 20 times in the last 10 years.

I'd like to draw your attention to the years 2025 and 2030 by which time most of the auto manufacturers have made commitments to reach a set number of sales, models or percentage of sales (of EVs).

The minerals required to meet these commitments are not fully secured and in order to support this growth, auto manufacturers are going to require "giga" battery factories to be constructed.

At the moment, Asia is where most of the gigafactories are but as we diversify and localize supply chains, we are seeing Europe and North America slowly catch up.

Asia has a significant advantage and a head start over the rest of the world. The additional planned capacity over the next decade constitutes at least \$100 billion in investment in gigafactories alone.

This doesn't include the investment in critical minerals needed to supply these gigafactories.

Closer to home, Canadian and US projects under development are well positioned to feed gigafactories under construction as part of a North American supply chain.

By the end of the decade, we will see a minimum of eight battery factories representing an investment of almost \$30 billion. The battery minerals for these eight factories aren't yet secured and could come from Canada.

US demand by the end of this decade will be at about 300 thousand tons for lithium carbonate equivalency. This is production that will be required.

A typical value chain for the lithium battery industry begins with mining and flows all the way through to recycling. Canada is looking to participate through the entire value chain.

We're already quite active on the recycling side where we've developed technologies to recycle effectively. We are also quite active on the mining side on the other end.

As a country, we want to bridge the gap and participate in the middle; in the manufacturing of the chemicals and of the battery components and the batteries. To that end, different provinces and territories will have to play to their strengths with Quebec and Ontario likely playing a key role downstream.

The resource-rich provinces and territories will play a role in supplying the minerals and possibly refining some of them in certain cases.

All of this growth requires significant new metal. By 2030 lithium and nickel demand just from electric vehicles will have grown by four times. That will require the mining industry to invest almost \$150 billion; almost matching the auto manufacturers.

This is harder to do given that it takes seven to 10 years to get an exploration asset into production given the hurdles for studies, environmental permits and social licence that we need.

More importantly, responsible sourcing is a key requirement for auto manufacturers. Securing ESG-friendly nickel and cobalt will be a challenge.

Not all nickel is created equal from an ESG perspective. Carbon footprint is an important consideration. Other factors to take into account include the environmental footprint and indigenous relations.

There are a limited number of attractive nickel assets that produce battery friendly nickel and meet an acceptable ESG threshold.

So what will end up happening is that all western automotive companies will need to compete for the same ESG-friendly assets.

Half of all global Lithium reserves are located in regions with water scarcity issues. Generally there's a trade-off between carbon intensity of hard rock versus water intensity of other production methods.

This is an area where Canada can dominate with very ESG friendly nickel and cobalt sources as well as some opportunities in lithium.

Siddhartha Subramani (Sid) is a Principal in Hatch and leads the transactions and market analysis services globally. Hatch supplies engineering, project and construction, business consulting and operational services to the mining, metallurgical, energy and infrastructure industries.





# Powering the future!

Government of  
Northwest Territories

Canada's Northwest Territories holds world-class potential to help create the clean energy the world needs. Our wealth of battery minerals – rare earth elements, cobalt, nickel, lithium, copper, vanadium and graphite – can move us forward. Let's get connected and power the future.

- 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*

## Unlocking our Potential

NORTHWEST TERRITORIES MINERALS AND PETROLEUM

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