Cobalt is recognized as a strategically important metal by both the US and European Union. This is because cobalt has become an essential metal in the rechargeable battery manufacturing and electric car industries. Metal forecasts predict that by 2019 over half of the cobalt that is produced will be used to make rechargeable batteries\(^1\).

**Northwest Territories Activity**

**Fortune Minerals’** NICO project is an advanced cobalt-gold-bismuth-copper project that has been approved for mine development following an environmental assessment and a positive feasibility study completed in 2014. The mine, as proposed, was expected to support a 21-year mine life. Fortune is working on an updated feasibility study that will incorporate changes in the production rate amongst other variables. The NICO deposit contains proven and probable reserves of 33 million tonnes, including 1.1 million ounces of gold, 82 million pounds of cobalt, 102 million pounds of bismuth and 27 million pounds of copper. Negotiations into project financing are ongoing.

Fortune Minerals has received environmental assessment approval to build a 49-km spur road from Whati to the proposed mine. Construction of the Tlicho all-season road from existing Highway 3 to the community of Whati is being funded by government and is slated to begin in 2019. Fortune completed a socio-economic agreement with the Government of the Northwest Territories in early 2019.

**Strongbow Exploration’s** Nickel King deposit in the NWT is close to the border with Saskatchewan, and approximately 145 km northeast of the town of Stony Rapids, Saskatchewan. A resource estimate was calculated in 2009 at various nickel cut-off grades. (Nickel is the primary resource, whereas cobalt is a secondary product.) Several satellite deposits and geophysical targets that remain to be tested in the area may be found to contain additional resources.

The Northwest Territories has seen cobalt production in the past from various operations located at the eastern edge of Great Bear Lake and in the vicinity of the East Arm of Great Slave Lake. Cobalt was commonly produced as a byproduct of polymetallic veins.

\(^1\) https://electrek.co/2016/11/01/breakdown-raw-materials-tesla-batteries-possible-bottleneck/
Cobalt-Co

Uses

- A positive electrode in lithium-ion batteries in electric vehicles and portable electronics.
- Forms a superalloy that is used in the aerospace industry to make power and jet engine turbines.
- A component of a hard-wearing alloy used in wind turbines.
- Electromechanical devices such as magnets, electric motors, generators and transformers.
- Potential as a catalyst in hydrogen fuel cells.

Growth of Cobalt Demand

Cobalt demand is currently driven by consumer demand for portable electronic devices and for electric vehicles. China is the world’s largest consumer of cobalt and the Democratic Republic of Congo is the world’s leading producer with over one-half of the world’s total production.

In a typical Lithium Cobalt Oxide (LCO) battery, used in cell phones, laptops and cameras, cobalt is used as the positive electrode with approximately 60 per cent cobalt by weight. In electric vehicle batteries and power tools there is between 10-20 per cent cobalt by weight.

Prospects

<table>
<thead>
<tr>
<th>Name</th>
<th>Status</th>
<th>Project Owner / Manager</th>
<th>Resource Category</th>
<th>Total Resource: million tonnes (Mt)</th>
<th>Grade: grams per tonne (g/t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NICO</td>
<td>drilled; advanced project</td>
<td>Fortune Minerals Ltd.</td>
<td>Proven and Probable Reserve</td>
<td>33 Mt</td>
<td>0.11% Co + 1.03 g/t Au + 0.14% Bi +</td>
</tr>
<tr>
<td>THYE LAKE (NICKEL KING)</td>
<td>drilled</td>
<td>Strongbow Exploration Inc.</td>
<td>Indicated (Main Zone)</td>
<td>11.1 Mt</td>
<td>0.4% Ni, 0.1% Cu, 0.018% Co</td>
</tr>
</tbody>
</table>

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www.nwtgeoscience.ca www.it.gov.nt.ca

Note: Discrepancies in the numbers may differ from published reports due to rounding.

Unlocking our Potential

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Investment Opportunities
NORTHWEST TERRITORIES

Copper is second only to silver in its ability to conduct electricity.

Native copper was initially discovered by Inuit in the Coppermine River and Coronation Gulf areas. Since then, copper has been found in sedimentary rocks in the Mackenzie Mountains, in polymetallic veins associated with silver, tungsten and gold, in iron oxide copper gold (IOCG) type deposits, in volcanogenic massive sulphide deposits and in magmatic sulphide deposits.

Past Production and Current Activity

Copper has been produced as a significant byproduct in several mines that operated in the Northwest Territories (NWT). Examples of this include the Echo Bay Mine, which was primarily a silver mine. However, from 1964 to 1976, the mine produced 4935 tonnes of copper. Echo Bay Mines Ltd’s Eldorado Mine produced 2114 tonnes of copper between 1975 and 1982 as a byproduct of silver production; and, Terra Mine produced silver and byproduct copper beginning in 1969 through until 1985. In total, 1633 tonnes of copper were produced (in addition to 14.5 million ounces of silver). The Cantung Mine area was initially staked in the 1950s because of its copper showings. Cantung produced 1202 tonnes of copper in addition to over 5.3 million stu (standard ton units) of tungsten between 1962 and 1986.

Fortune Minerals Ltd.’s NICO project is a proposed bismuth, gold, cobalt and copper producer. The company has construction permits, is negotiating financing and will benefit from Tlicho all-season road construction by the Government of the Northwest Territories (GNWT), planned to begin in 2019. Fortune Mineral’s Sue-Dianne deposit 25 km north of NICO hosts an indicated 8.4 million tonnes of ore with an average grade of 0.8% Cu.

Redbed Resources Corp. (RRC) owns a property that covers the Coates Lake/Redstone deposit. An historic NI 43-101 non-compliant inferred resource was estimated using widely spaced holes over a strike length of 6.5 kilometres; a possible 33.6 million tonnes at a grade of 3.92% Cu was calculated. CNM is looking for a joint venture partner interested in carrying out further drilling.
Seabridge Gold Inc. (SG) holds the Deb deposit within its Courageous Lake project. Since 2003, SG has focused its work on other areas, so the historic NI 43-101 non-compliant inferred resource of one million tonnes with an average grade of 0.83% copper, 2.96% zinc and 21.9 g/t silver has not changed.

Panarc Resources Ltd.’s Indian Mountain Lake property hosts several volcanogenic massive sulphide deposits, one of which, Kennedy Lake West, is copper enriched. An historic NI 43-101 non-compliant resource estimated the deposit contained 550,000 tonnes at an average grade of 1.12% copper.

Several other known polymetallic deposits in NWT contain copper and, if they were to be brought into production, copper would likely be produced as a byproduct.

Other Prospects

The Jay deposit lies within sedimentary rock within the Sahtu Dene and Metis Settlement Area Conservation Zone. The showing was first discovered in 1969. A non-compliant historic inferred resource estimated the stratiform deposit contained 1.2 million tonnes with an average grade of 2.7% copper.

Uses

- Widely used in the automotive industry, copper is a component in wiring, motors, radiators, connectors, brakes and bearings.
- Electrical wiring, power distribution cables, appliance wiring and communications cables all contain copper.
- Copper is in integrated circuits and printed circuit boards, electromagnets, magnetrons in microwave ovens and some cooking utensils.
- Buildings contain copper wiring, plumbing, water pipes, thermostats and paint pigments and may be used in roofs and flashing and in heat sinks and heat exchangers.
- Copper has anti-microbial applications that kill bacteria, so it is a component within bedrails, handrails, doorknobs, computer keyboards and health club equipment.

Uses

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Ekati Diamond Mine, Diavik Diamond Mine and Gahcho Kué Mine are all diamond producers in the Northwest Territories (NWT). The opening of Gahcho Kué in September 2016 is proof of the growth potential of NWT’s diamond industry and investors’ confidence.

The NWT accounts for three per cent of the world’s diamond production by value. In 2018, the NWT produced approximately 21.1 million carats of diamonds with an estimated value of $2.09 billion.1

Diamond Production

Since November 2017, Diavik Diamond Mine has been owned 60 per cent by Rio Tinto and 40 per cent by Dominion Diamond Mines ULC, a private company. Total proven and probable ore reserves at Diavik as at December 31, 2018 (and using a 1.0 mm cut-off) totaled 15 million tonnes with an average grade of 2.8 carats per tonne.

Diavik reached a production milestone of 100 million carats in 2016. In 2018, Diavik recovered 7.26 million carats of diamonds, including the largest diamond ever found in North America, a single yellow diamond that weighed 552 carats.

Dominion Diamond Mines ULC owns 89.9 per cent of Ekati Mine and is the operator.

Gahcho Kué Mine began full commercial production in March 2017. The mine is a joint venture between De Beers Canada Inc. and Mountain Province Diamonds Inc. Mineral Reserves as of December 31, 2018 stood at a probable 30.1 Mt of diamond with an average grade of 1.53 carats per tonne of ore (calculated using a 1.0 mm cut-off). During 2018, the Gahcho Kué Mine recovered approximately 6.9 million carats of diamonds. Drilling carried out in 2018 considerably expanded reserves and resources.

NWT Investment Opportunities

In July 2016, De Beers announced that it was placing the Snap Lake diamond mine up for sale. In addition to the reserves at year-end 2015 (see table), Snap Lake Mine had an indicated resource of 4.1 million tonnes with an average grade of 1.78 carats of diamonds per tonne. The mine is currently in care and maintenance and De Beers Canada Inc. continues clean-up and restoration at the site.

---

Diamonds

Diamond Exploration
Mountain Province Diamonds Inc. acquired Kennady Diamonds Inc. in 2018 whose Kennady North project is adjacent to the Gahcho Kué Mine. Two pipes on the property have seen extensive work: Kelvin pipe contains an indicated resource of 8.5 million tonnes at an average grade of 1.6 carats per tonne of diamonds, while an inferred resource estimate for the Faraday 2 kimberlite stood at 2.07 million tonnes with a grade of 2.63 carats per tonne (March 2019).

Margaret Lake Diamonds drilled five separate targets on the Margaret Lake project in 2018. The property is contiguous with the Kennedy North project. In addition, Margaret Lake Diamonds has partnered with Arctic Star Exploration Corp. to explore in the Lac de Gras area.

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Project Owner / Manager</th>
<th>Sample Result1</th>
<th>Sample Size2</th>
<th>Diamonds Recovered</th>
</tr>
</thead>
<tbody>
<tr>
<td>Lac de Gras (WO / DO27)</td>
<td>72.1% De Beers Canada Inc.; 17.6% Archon Minerals Limited; 10.3% DHK Diamonds Inc.</td>
<td>DO 27 Ind (Aug. 7 2008)</td>
<td>19.5 Mt</td>
<td>0.94 ct/t</td>
</tr>
<tr>
<td>Yamba Lake/Torrie/Triceratops</td>
<td>GGL Resources Corp.</td>
<td>Prelim</td>
<td>83.6 kg</td>
<td>68 diamonds; 6 macros</td>
</tr>
<tr>
<td>CL 25 (Camsell Lake)</td>
<td>Mike Magrum</td>
<td>Prelim</td>
<td>350.4 kg</td>
<td>221 diamonds; 9 macros</td>
</tr>
<tr>
<td>Afridi Lake</td>
<td>Crown Land</td>
<td>Prelim</td>
<td>511.3 kg</td>
<td>46 diamonds; 4 macros</td>
</tr>
<tr>
<td>Blue Ice/Victoria Island</td>
<td>Crown Land</td>
<td>Prelim</td>
<td>934 kg</td>
<td>172 diamonds</td>
</tr>
<tr>
<td>Nicholas Bay</td>
<td>Crown Land</td>
<td>Prelim</td>
<td>127.7 kg</td>
<td>1,174 diamonds</td>
</tr>
<tr>
<td>Drybones Bay/Mud Lake</td>
<td>David Smith</td>
<td>Prelim</td>
<td>10 t (Drybones); 100 t (Mud Lake)</td>
<td>97 macros; 11 macros</td>
</tr>
<tr>
<td>Snap Lake Mine</td>
<td>De Beers Canada Inc.</td>
<td>Prb (Dec. 31, 2015)</td>
<td>5.7 Mt</td>
<td>1.26 ct/t</td>
</tr>
<tr>
<td>Kennady North</td>
<td>Mountain Province Diamonds Inc.</td>
<td>Kelvin (Ind); Faraday 2 (Inf)</td>
<td>8.5 Mt; 2.07 Mt</td>
<td>1.6 ct/t; 2.63 ct/t</td>
</tr>
<tr>
<td>Ranch Lake</td>
<td>Mike Magrum</td>
<td>Prelim</td>
<td>855 kg</td>
<td>266 diamonds; 46 macros</td>
</tr>
<tr>
<td>Hoam</td>
<td>Olivut Resources Ltd.</td>
<td>Prelim</td>
<td>TBD</td>
<td>6 diamonds from 3 kimberlites</td>
</tr>
<tr>
<td>Darnley Bay Gravity Anomaly</td>
<td>Generation Mining Ltd.</td>
<td>Prelim</td>
<td>533.1 kg</td>
<td>65 diamonds; 2 macros</td>
</tr>
<tr>
<td>Roundrock</td>
<td>Stornoway Diamond Corp.</td>
<td>Prelim</td>
<td>134.2 kg</td>
<td>19 diamonds; 6 macros</td>
</tr>
<tr>
<td>Cross Property</td>
<td>Stornoway Diamond Corp.</td>
<td>Prelim</td>
<td>2.4 t</td>
<td>7 diamonds</td>
</tr>
<tr>
<td>Munn Lake/Mackay Lake</td>
<td>Zimtu Capital Corp. / DG Resource Management</td>
<td>Prelim</td>
<td>42 kg</td>
<td>14 diamonds; 2 macros</td>
</tr>
</tbody>
</table>

1Indicated Resource (Ind); Inferred Resource (Inf); Probable Reserve (Prb); Preliminary Sample Result (Prelim) 2Tonnes (t); Million tonnes (Mt); Kilograms (kg); TBD (to be determined)

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www.nwtgeoscience.ca  www.iti.gov.nt.ca

Please visit company websites for latest information.

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Investment Opportunities
NORTHWEST TERRITORIES
May 2019

Gold is among the most useful of metals; it conducts electricity, does not tarnish, is very easy to work, and alloys with other metals. The Northwest Territories is renowned for its deposits of gold, often hosted in quartz veins in Archean volcanic rocks such as the Yellowknife Greenstone Belt and associated with shear zones in the Slave Structural Province.

The former Con and Giant mines in Yellowknife are examples of this type of host. Together, they produced over 12 million ounces of gold over a mine-life of close to 70 years. The Discovery Mine, north of Yellowknife, produced one million ounces from one million tonnes of ore.

Other known gold deposits are found in folded Archean banded iron formations, and quartz-sulphide veins within granodiorite.

Current Activity

Extensive exploration is underway across the NWT. Several past-producing mine properties and their environs are being explored: Seabridge Gold Inc. has defined resources at Courageous Lake and continues to discover new deposits; Nighthawk Gold Corp. is exploring in the Indin Lake area, and, apart from expanding the Colomac resource, has identified near-surface gold in several zones; and, TerraX Minerals Inc. is exploring its Yellowknife City Gold Project (which hosts past producers Crestaurum and Burwash Mines) and covers a 70-km stretch of the Yellowknife Greenstone Belt.

Sixty North Gold Mining Ltd. has plans to bulk sample the Mon deposit beginning in 2019. Mon is a past-producer that is fully permitted for mining and milling at a rate of 100 tons per day.

In addition there are several companies with considerable exploration plans. GoldMining Inc. released a technical report and resource estimate on its Yellowknife Gold project in April 2019. Evrim Resources Corp. in partnership with a subsidiary of Newmont Mining Corp., performed grassroots exploration work on properties in the Mackenzie Mountains. They were issued a Land Use permit in 2019 for further exploration. Rover Metals Corp. has gold targets near Yellowknife and expanded exploration to its Cabin Lake properties in 2018.
Gold-Au

Uses
- Gold is used in clean and green technology.
- Gold is usually alloyed with other metals, commonly copper.
- Gold is a coating on aircraft windows and thin gold films protect spacecraft and office towers from infrared rays.
- Gold is used in connectors, switch contacts and connection wires.
- Computer cable fittings contain gold and small amounts of nickel or cobalt to increase durability.
- A small amount of gold is used in cell phones, GPS units and television sets.
- Gold is used in medicine to seal wounds, to treat arthritis and in laser surgery tools.
- Gold is used in auto airbag deployment systems.

Business case
The NWT has high potential to host future gold mines. An extensive collection of scientific data from previous studies, exploration records, and assessments are available from the Northwest Territories Geological Survey. Many companies are investing in exploration and carrying out advanced programs because they believe the NWT's future is golden.

Prospects

<table>
<thead>
<tr>
<th>Name</th>
<th>Owner</th>
<th>Resource Category</th>
<th>Total Resource (tonnes; million tonnes)</th>
<th>Grade grams per tonne</th>
</tr>
</thead>
<tbody>
<tr>
<td>Bugow</td>
<td>Rover Metals Corp.</td>
<td>~</td>
<td>70,000 t (Mt)</td>
<td>10.29 g/t</td>
</tr>
<tr>
<td>Gab</td>
<td>Silver Range Resources Ltd.</td>
<td>~</td>
<td>27,215 t</td>
<td>10.63 g/t</td>
</tr>
<tr>
<td>Camp Lake</td>
<td>Rover Metals Corp.</td>
<td>~</td>
<td>46,400/N Zone 11,840 S Zone</td>
<td>13.70/12.00 g/t</td>
</tr>
<tr>
<td>Slemon</td>
<td>Rover Metals Corp.</td>
<td>~</td>
<td>31,751 t</td>
<td>6.80 g/t</td>
</tr>
<tr>
<td>Discovery Mine</td>
<td>GoldMining Inc.</td>
<td>~</td>
<td>206,897 t</td>
<td>22.62 g/t</td>
</tr>
<tr>
<td>Nicholas Lake</td>
<td>GoldMining Inc.</td>
<td>Meas + ind</td>
<td>1.550 Mt 2.72 g/t</td>
<td>2.72 g/t</td>
</tr>
<tr>
<td>Ormsby Zone</td>
<td>GoldMining Inc.</td>
<td>Meas; ind</td>
<td>1.176; 1 0.568 Mt</td>
<td>2.12; 2.25 g/t</td>
</tr>
<tr>
<td>Mosher Lake</td>
<td>Lane Dewar/ M. Magrum/T. Teed</td>
<td>~</td>
<td>500,765 t</td>
<td>2.81 g/t</td>
</tr>
<tr>
<td>Ren</td>
<td>Lane Dewar/ Mike Magrum</td>
<td>~</td>
<td>1.8 Mt</td>
<td>10.00 g/t</td>
</tr>
<tr>
<td>Mon</td>
<td>60 North Gold Mining Ltd.</td>
<td>PP</td>
<td>10,070 t</td>
<td>10.00 g/t (recov)</td>
</tr>
<tr>
<td>Damoti</td>
<td>Nighthawk Gold Corp.</td>
<td>Meas + ind</td>
<td>40,600 t</td>
<td>26.17 g/t</td>
</tr>
<tr>
<td>Colomac</td>
<td>Nighthawk Gold Corp.</td>
<td>inf</td>
<td>44.8 Mt</td>
<td>1.64 g/t</td>
</tr>
<tr>
<td>Treasure Island</td>
<td>Nighthawk Gold Corp.</td>
<td>~</td>
<td>105,400 t</td>
<td>14.09 g/t</td>
</tr>
<tr>
<td>Indin Lake</td>
<td>Nighthawk Gold Corp.</td>
<td>~</td>
<td>214,000 t</td>
<td>16.46 g/t</td>
</tr>
<tr>
<td>Jax Lake</td>
<td>Crown Land</td>
<td>~</td>
<td>36,287 t</td>
<td>14.10 g/t</td>
</tr>
<tr>
<td>Kim and Cass</td>
<td>Pine Cliff Energy Ltd.</td>
<td>~</td>
<td>448,950 t</td>
<td>7.37 g/t</td>
</tr>
<tr>
<td>Courageous Lake</td>
<td>Seabridge Gold Inc.</td>
<td>Prv; Prb</td>
<td>12.3 Mt/Prv 78.8 Mt/Prb</td>
<td>2.41 / 2.17 g/t</td>
</tr>
<tr>
<td>Mahe</td>
<td>Silver Pursuit Resources Ltd.</td>
<td>~</td>
<td>156,840 t</td>
<td>17.28 g/t</td>
</tr>
<tr>
<td>Crestaurum</td>
<td>TerraX Minerals Inc.</td>
<td>~ind + inf</td>
<td>145,150 t</td>
<td>7.54 g/t</td>
</tr>
</tbody>
</table>

1 indicated (ind); inferred (inf); Measured (Meas); Proven Reserve (Prv); Probable Reserve (Prb); Historic (NI 43-101 non-compliant)(~); Past Production mined (PP);

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Investment Opportunities
NORTHWEST TERRITORIES

November 2019

Zinc and lead are commonly found together in deposits and mined as co-products. Zinc is the fourth most consumed metal after iron, aluminum and copper. It bonds well with other metals and resists corrosion; three quarters of global zinc production is used in the manufacturing of galvanized metal.

Lead’s high density and corrosion-resistant properties make it ideal for use in highly acidic environments; its primary use is in lead-acid storage batteries.

Current NWT Activity

The Northwest Territories (NWT) is home to three advanced-stage lead-zinc exploration projects, namely Prairie Creek Mine, the Pine Point project and the Selwyn Project. Many other projects have identified resources that could lead to economic discoveries.

NorZinc Ltd.’s (CZN) Prairie Creek Mine project has been approved to commence mining and milling, subject to water licence and land use permit conditions. NorZinc has applied for a permit to build and use an all-season access road. Prairie Creek already has extensive infrastructure (e.g. 5 km of underground workings, 1,000-metre airstrip, 180-km winter road, and a 1,000 ton per day mill); the 2017 preliminary feasibility study estimated pre-production capital costs of $279 million. The study envisioned a 15-year mine life, an after-tax NPV (net present value) of $188 million and an IRR (internal rate of return) of 18.4 per cent. These values were calculated using lead and zinc prices of US$1.00 per pound and US$1.10 per pound, respectively, and a silver price of US$19 per ounce, plus an exchange rate of $1.25 Canadian for each US dollar.

Pine Point Ltd. (a wholly-owned subsidiary of Osisko Metals Inc.) is actively drilling targets in several zones within the Pine Point Project. Historically, the property hosted Pine Point Mine, which produced lead and zinc from 51 deposits beginning in 1964 through 1987.

The company released a pit-constrained inferred mineral resource of 52.4 Mt with an average grade of 4.64% zinc and 1.83% lead late in 2019. Some of that resource will be further defined as an indicated resource following 2019 drilling.

Numerous companies hold the rights to other significant NWT lead-zinc deposits: SSR Mining Inc. (Sunrise Project); Panarc Resources Ltd. (Indian Mountain Lake Project);
Zinc-Lead – Zn-Pb

Silver Bear Mines Inc. (Bear Property); Teck Resources Ltd. (Turnback Lake Project), and Blind Creek Resources Ltd. (AB project) to name a few. Some contain multiple elements (gold, silver and copper) in combination with lead and zinc that will improve project economics.

Selwyn Chihong Mining Ltd.’s (SCML) Selwyn Project is one of the largest undeveloped zinc-lead deposits in the world. The project area hosts 14 drill-defined deposits within a 40-km-long belt along the NWT/Yukon border. Approximately 10 per cent of the project is located within the NWT. SCML was in the process of getting approval for the upgrade of the access road to the project when a decision was made to wait for a more opportune time. The project as planned has a capital cost of approximately US$2.12 billion and a mine life of more than 11 years at a mining rate of 35,000 tonnes of ore per day.

### Prospects

<table>
<thead>
<tr>
<th>Project Name</th>
<th>Commodity</th>
<th>Owner</th>
<th>Resource Category</th>
<th>Total Resource (t); million tonnes (Mt)</th>
<th>Grade grams per tonne (g/t)</th>
<th>Resource Effective Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Prairie Creek</td>
<td>zinc, lead, silver</td>
<td>NorZinc Ltd.</td>
<td>Meas + Ind</td>
<td>8.70 Mt</td>
<td>9.50% Zn, 8.90% Pb, 136 g/t Ag</td>
<td>Sept. 2015</td>
</tr>
<tr>
<td>Pine Point</td>
<td>zinc, lead</td>
<td>Osisko Metals Inc.</td>
<td>Meas + Ind</td>
<td>52.4 Mt</td>
<td>4.64% Zn, 1.83% Pb</td>
<td>Nov. 2019</td>
</tr>
<tr>
<td>Selwyn Project</td>
<td>zinc, lead, silver</td>
<td>Selwyn Chihong Mining Ltd.</td>
<td>Ind</td>
<td>185.6 Mt</td>
<td>5.20% Zn, 1.79% Pb</td>
<td>Aug. 2012</td>
</tr>
</tbody>
</table>

Zinc-Lead Uses

- Zinc provides corrosion protection on immersed steel structures such as ships, pipelines, and drill rigs.
- Building and construction industries use zinc in the coated steel strips of roofing and for cladding.
- Zinc oxide is used in the production of rubber (tire industry) and in ceramics, paints and agriculture; it also has medicinal uses.
- Brass is an alloy containing 95 per cent copper and five per cent zinc. Bronze is primarily an alloy of copper with tin, but it may contain zinc. Other zinc alloys are used in automobiles and electrical components.
- Lead is a significant component in batteries, particularly in lead-acid ignition (vehicle) batteries.
- Lead is widely used in manufacturing various alloys.
- Lead is used as ballast in the keel of sailboats.
- Lead is able to shield radiation, so it is commonly used in the medical field to shield x-rays.

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Please visit company websites for latest information.

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Demand is growing fast for lithium, the wonder metal powering electric vehicles, smart phones and space exploration. The Yellowknife area has high potential to become a hub for lithium-bearing pegmatites that were discovered by extensive exploration in the mid to late 1950s.

In the mid to late 1970s, numerous pegmatites were evaluated within a 100-km radius east, northeast and southeast of Yellowknife. Historic (pre NI 43-101) inferred tonnage for eight of those deposits varied from 2.3 million tonnes (grading 1.5% Li₂O) to 13.9 million tonnes (grading 1.2% Li₂O).

Production and current activity

Destaffany Mine southeast of Yellowknife produced some 17,052 lb of lithium in the late 1940s and early 1950s, before the mine closed due to lack of demand.

Erex International, a private company, holds mineral leases on the majority of the large known deposits, including the Big/Murphy lithium deposit, 21 km east of Yellowknife, which was first staked in the 1950s.

Far Resources Ltd. has optioned claims in the vicinity of Hidden Lake from 92 Resources Corp. A 10-hole drill program in 2018 followed up on extensive surface sampling that identified significant lithium values on four main dikes. Drilling resulted in assays from 1-2% Li₂O intersected over widths of 2 to 9 metres.

Clean Commodities Corp. has picked up the Phoenix lithium project from North Arrow Minerals Inc., about 300 km north of Yellowknife. Drilling results for 2009 are highlighted by a hole that cut 34.3 metres that assayed 1.24% Li₂O.

Equitorial Exploration Corp. plans to drill its LNPG (Li, Cs, Ta) property in the Mackenzie Mountains. In 2016, channel sampling was highlighted by one sample within a dike that cut 2.04 per cent Li₂O, 57.8 g/t Ta₂O₅ and 0.05 per cent SnO₂ across 4.0 metres.
Lithium-Li

Prospects

<table>
<thead>
<tr>
<th>Name</th>
<th>Commodity</th>
<th>Owner</th>
<th>Historic Inferred Resource (tonnes)</th>
<th>Grade Li₂O</th>
</tr>
</thead>
<tbody>
<tr>
<td>Big/Murphy</td>
<td>Li</td>
<td>Erex International Ltd.</td>
<td>7.2 million</td>
<td>1.47%</td>
</tr>
<tr>
<td>FI Main Dyke</td>
<td>Li</td>
<td>Erex International Ltd.</td>
<td>6.5 million</td>
<td>1.49%</td>
</tr>
<tr>
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<td>Li</td>
<td>Erex International Ltd.</td>
<td>1.7 million</td>
<td>1.50%</td>
</tr>
</tbody>
</table>

Uses

- Lithium, the lightest metal, is extremely soft, highly reactive and flammable.
- Automakers around the world are now competing to develop electric cars that are expected to use large, rechargeable lithium-ion batteries.
- Highly efficient, rechargeable, lithium-ion batteries are used extensively in portable electronic devices such as cell phones, cameras, music players, and GPS units, and as batteries for electric tools.
- Lithium is an ingredient in high temperature lubricating greases.
- Alloys are used to create high performance aircraft parts.
- Lithium is used to remove carbon dioxide in space vehicles and submarines.
- Lithium also has a medical use, as it appears to lighten moods.
- Glazes containing lithium are used for ovenware.

Lithium is in world demand

China dominates the world lithium market. China is also stepping up production of electric vehicles, including buses. South Korea, Japan and Hong Kong buy significant quantities of lithium for battery use.

In the United States, Tesla Motors is planning to produce lithium-ion batteries for up to half a million cars. Lithium can also be used to store electricity generated by wind or solar power. Tesla Motors has announced it will be selling and installing battery packs for US and Australian homes to store solar-generated energy. Power utilities, including one in Alaska, are testing the viability of giant lithium-ion back-up battery packs to store power for use at peak demand times.

The demand for supplies of lithium was expected to grow by some eight per cent annually in 2014. However, with the creation of mega lithium-ion battery factories, analysts believe demand will double.

Prospects

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Little Nahanni pegmatites in the Mackenzie Mountains
Rare Earth Elements (REE) is the term used to describe 17 elements that include lanthanum and the lanthanide elements\(^1\) (atomic numbers 57 through 71 on the periodic table), as well as scandium and yttrium. These elements tend to occur together, but are rarely found concentrated in deposits that can be mined. The rare earth elements are all metals and are also known as rare earth metals (REM).

Rare earth elements are commonly found as oxides and categorized as heavy rare earth oxides (HREO) and light rare earth oxides (LREO). The two can be combined and reported as total rare earth oxides (TREO).

**Current Activity**

**Avalon Advanced Materials Inc.** (AVL) calculated a proven and probable mineral reserve in April 2013, which formed part of a feasibility study for the Nechalacho project, located at Thor Lake about 100 kilometres southeast of the capital city of Yellowknife. In August, 2013, an updated resource estimate was released taking into account zircon, niobium and tantalum oxides.

The project has undergone an environmental assessment and in 2014 was approved for pre-construction work that included the development of an underground decline. Avalon has not begun this work as the company continues to explore options to improve the economics of the project.

The deposit is flat lying, lies approximately 200 metres below surface and is amenable to low-cost underground bulk mining methods.

The mine-life is forecast to be 20 years using a mining production rate of 2,000 tonnes per day. AVL is working to optimize value by making changes to the metallurgical process flowsheets.

In the past, deposits in the Thor Lake area have also been assessed for their Beryllium, Tantalum, Niobium (Columbium) and Thorium content.

AVL plans to focus on defining high-grade, near-surface neodymium-praseodymium rich resources in the T-Zone and Tardiff Lake Zones in 2018. Sampling will also be carried out in order to calculate a lithium resource in the T-Zone.

**Cheetah Resources**

In 2019, Avalon entered into a collaborative agreement with a private Australian company, Cheetah Resources Pty Ltd, enabling Cheetah to participate in small-scale, minimal environmental impact, near surface development at the project site. The objective is to mine the near surface deposits between surface and 150 meters depth at the T-Zone and Tardiff zones, and supply a high purity mixed rare earth feedstock to established third party Rare-Earth Oxide (REO) separation and refining facilities. The plan shortens lead time to production to capture increased demand for REOs. The Nechalacho property is a rich polymetallic rare metals resource, with additional potential for economic recovery of beryllium, lithium, zirconium, niobium, and tantalum. Presence of high grade, near surface neodymium-praseodymium (Nd-Pr) and dysprosium resources is indicated at the T-Zone, Tardiff zone and Lake Zone areas.

\(^1\) The lanthanides include the metals cerium (Ce), praseodymium (Pr), neodymium (Nd), promethium (Pm), samarium (Sm), europium (Eu), gadolinium (Gd), terbium (Tb), dysprosium (Dy), holmium (Ho), erbium (Er), thulium (Tm), ytterbium (Yb) and lutetium (Lu).
Rare Earth Elements-REE

Uses

- High strength permanent magnets used in electric vehicles, industrial motors, air-conditioners, wind and tidal turbine generators.
- LED Lighting in consumer goods such as televisions, computers, mobile phones, cameras and tablets, and in fluorescent lighting.
- Military technologies such as satellite communication, radar, night-vision goggles, mine detectors, jet engines and sonar.
- Rare Earths are used in catalysts for air pollution control.

Global production and market price

China produces over 80 per cent of the world’s rare earth metal materials and is host to over 30 per cent of the world’s reserves (USGS Mineral Commodity Summary Fact Sheet 2017). China is starting to control its production (including a crackdown on illegal miners) which will lead to improved prices. Companies with resources are poised to begin work that will fast-track to production when the market rebounds.

Other Known REE Showings

Several showings south of Great Slave Lake have been drilled and tested for their uranium, thorium and rare earth potential. Some of the uranium showings in the Churchill Geological Province were found to contain highly anomalous REE values. Other IOCG (Iron Oxide Copper Gold) targets northwest of Yellowknife in the Bear Geological Province have been found to contain anomalous REE values and REE have also been found within carbonatite in the Slave Geological Province.

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Tungsten is a metal with a unique set of chemical properties that contributes significantly to products manufactured and used globally. With qualities that include a high melting point (3,422±15°C), high density, high tensile strength, exceptional hardness and corrosion-resistance, tungsten has many uses.

Known world-class NWT Tungsten Resources

The Northwest Territories (NWT) hosts globally significant tungsten resources and is home to one of the world’s largest tungsten deposits outside of China. Two substantial tungsten deposits overlap the NWT/Yukon border, the past-producing Cantung Mine and the Mactung deposit.

The Cantung Mine is road-accessible via Watson Lake, Yukon, which lies about 300 kilometres southwest of the mine. Discovered in 1954 and mined since 1962, the Cantung Mine produced tungsten, off and on, until October 2015. The price of tungsten has been cyclical. Between 2011 and 2014, the mine profited from prices that were sporadically almost double of what they had been (and later would become).

The undeveloped Mactung is one of the world’s highest grade deposits. It lies 160 kilometres northwest of Cantung and is currently accessible via road from Ross River, Yukon. Mactung has an indicated mineral resource that totals 33 million tonnes with an average grade of 0.88% WO3 and an additional inferred resource of 11.9 million tonnes at 0.78% WO3 (as of April, 2009). In 2009, a feasibility study was completed for Mactung; an underground mine was envisioned with a mining rate of 2,000 tonnes/day. Mine life for the underground development was predicted to be 11 years, while an open pit had the potential to expand the mine life by 17 years.

Through a court-approved process in 2015, the Government of the Northwest Territories purchased the Mactung property and the Government of Canada purchased the Cantung mine. The GNWT is working on a marketing plan for the sale of Mactung.
Tungsten-W

Other Prospects

Historically, small deposits in the NWT have produced tungsten as a byproduct (e.g. the Outpost Island Mine) and this may happen in the future (e.g. Fortune Minerals’ NICO deposit hosts some tungsten).

The Lened deposit, within the Sahtu Dene and Metis Settlement Area, has been designated a conservation area under the Sahtu Land Use Plan. A historic NI 43-101 non-compliant resource was calculated in 1986; the deposit was estimated to contain approximately 750,000 tonnes of ore with an average grade of 1.2%WO₃.

Uses

Cemented carbides used by the metalworking, mining and construction industries
- Hardened steel manufacturing
- Wires and electrodes in modern lamp systems
- X-Ray tubes (as both filament and target)
- Windings and heating elements for electrical furnaces
- Electrodes in TIG welding, superalloys and radiation shielding
- Military applications
- Vehicle window heating
- Industrial catalysts

Future Role of NWT Tungsten

The NWT was once the largest producer of tungsten in the western world and it is poised to become a future producer. The 2009 Mactung feasibility study concluded the mine would result in a recovery of invested capital in less than three years. Other small mines in the NWT have historically produced tungsten, and with more exploration there is potential for future discoveries.

Prospects

<table>
<thead>
<tr>
<th>Name</th>
<th>Project Owner / Manager</th>
<th>Resource Category</th>
<th>Total Resource:</th>
<th>Grade:</th>
<th>Resource Calculated</th>
</tr>
</thead>
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<td>Mactung</td>
<td>Government of the NWT</td>
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<td>April 2009</td>
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<tr>
<td>Cantung Mine</td>
<td>North American Tungsten Corp. / Government of Canada</td>
<td>Indicated</td>
<td>3.45 million tonnes</td>
<td>0.97% WO₃</td>
<td>Sept. 2014</td>
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</table>

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For more information about these deposits, please refer to Guide to Selected Mineral Deposits of the Northwest Territories www.it.gov.nt.ca/en/files/guide-mineral-deposits-northwest-territories

www.nwtgeoscience.ca

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Vanadium is a metal that has been used for many years in small amounts to strengthen steel used in automobile and air transport parts. Currently 90% of \( \text{V}_2\text{O}_5 \) consumption is steel-related. Vanadium’s use in new technology - vanadium redox flow batteries - is set to considerably expand the market.

Canada is not a primary vanadium producer. However, as a secondary producer (byproducts and recycling) in 2014, it accounted for about one per cent of global production. Vanadium has been mined and extracted from titaniferous magnetite deposits, vanadium-rich sandstone and carbon-rich shales. The principal sources of vanadium commonly contain from 0.1 to one per cent vanadium pentoxide.

### Current Activity

In 2018, Vanadium North Resources Inc. optioned the Van project located about 10 kilometres northwest of the past producing Cantung tungsten Mine and host to a vanadium-rich carbonaceous mudstone. In early 2019, Regency Gold Corp. offered to acquire Vanadium North in order to explore and profit from the vanadium potential of the expanded Valley of Vanadium property.

Previous work on the VAN showing focused on a unit that was about 50 metres thick. In 1970, one drillhole returns 0.49 per cent \( \text{V}_2\text{O}_5 \) over a true width of 30 metres (calculated using 0.4 per cent \( \text{V}_2\text{O}_5 \) as a cut-off grade).
Vanadium

In 1998, chip sampling in two areas returned assays that averaged 0.6 per cent V₂O₅ over 56-60 metres.

The Cordilleran area in the Northwest Territories has supported a tungsten mine in the past and has infrastructure including a road access and an airport that were established to support that mine site.

Uses
- About 90 per cent of consumption is in the manufacturing of steel
- Adds strength and heat resistance to iron alloys (in automobile and machinery parts)
- Used in alloys that are non-ferrous such as titanium (in jet engines and high-speed airframes)
- Used in catalysts, dyes and phosphors
- Vanadium-redox flow batteries and other vanadium redox batteries have potential to expand the market – these batteries have large capacities with limited self-discharge and have potential to replace lead-acid batteries and possibly diesel generators.

Prospects
Apart from the VAN and adjacent Flat Lake showings, a few other vanadium occurrences have seen limited work in the past. Vanadium has been found in uranium-bearing sandstones east of Great Slave Lake and in Iron Oxide Copper Gold (IOCG) deposits by Great Bear Lake. Elevated vanadium assays have been recorded from core samples of the Caribou Lake Gabbro near the East Arm of Great Slave Lake, drilled for its magmatic sulphide copper, nickel, and platinum group metals potential.

Business Case
Currently, China produces over one-half of the world’s V₂O₅, South Africa and Russia account for another 25 per cent, while the United States produces around four percent. The majority of the world’s vanadium production is a coproduct of iron ore mining and only about one-quarter is sourced from primary vanadium mining.

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