

# Lead-Zinc – Pb-Zn

## Investment Opportunities NORTHWEST TERRITORIES

Government of  
Northwest Territories

November 2017

Zinc and lead are commonly found within the same 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.

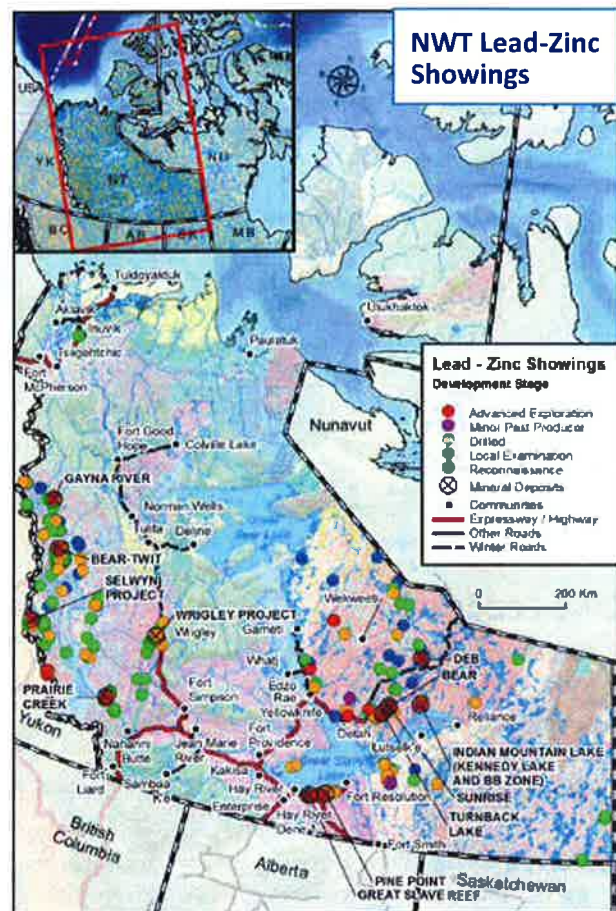
Lead's high density and corrosion-resistant properties make it ideal for use in highly acidic environments; its primary use is in lead-acid storage batteries.

### Current NWT Activity

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

Canadian Zinc Corporation's (CZN) Prairie Creek Mine project has been approved to commence mining and milling, subject to water licence and land use permit conditions. A decision regarding an application for a permit to build and use an all-season access road is imminent. 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 percent. 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\$.

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 is in the



process of getting approval for the upgrade of the access road to the project. 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.

Pine Point Mining Ltd. (formerly Darnley Bay Resources Ltd.) completed a Preliminary Economic Assessment for the Pine Point Project in April 2017 that proposed a mine with a 13-year

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mine-life resulting in an IRR of 34.5 percent and an after-tax NPV of \$210.5 million. The values were calculated using a zinc price of US\$1.10 per pound for zinc and US\$1.00 per pound for lead and an exchange rate of C\$1.00 = US\$0.75. Historically, the property hosted Pine Point Mine, which produced lead and zinc from 51 deposits beginning in 1964 through 1987. Pine Point Mining's resource (2017) featured ten deposits that host a total measured and indicated resource of 25.8 million tonnes with average grades varying from 2.65 per cent combined lead-zinc in one of the deposits, to 6.34 per cent combined lead-zinc in another. Drilling is ongoing in an effort to firm up resources that will be incorporated in a forthcoming feasibility study. The focus is to prove up resources that can be mined using open

pit methods. (The lead-zinc ore hosts Gallium and Germanium which may add to the project's economics.)

Numerous companies hold the rights to other significant NWT lead-zinc deposits: Eagle Plains Resources Ltd. (Bear Twit, AB and Bronco projects); Silver Standard Resources Inc. (Sunrise Project); Panarc Resources Ltd. (Indian Mountain Lake Project); Silver Bear Mines Inc. (Bear Property) and Teck Resources Ltd. (Turnback Lake Project), to name a few. Some contain multiple elements (gold, silver and copper) in combination with lead and zinc that will improve project economics.

## Prospects

Project Name	Commodity	Owner	Resource Category Indicated (Ind); Measured	Total Resource tonnes (t); million tonnes (Mt)	Grade grams per tonne (g/t)	Resource Effective Date
Prairie Creek	zinc, lead, silver	Canadian Zinc Corp.	Meas + Ind	8.70 Mt	9.50% Zn, 8.90% Pb, 136 g/t Ag	Sept. 2015
Pine Point	zinc, lead	Pine Point Mining Ltd.	Meas + Ind	25.8 Mt	2.94% Zn, 1.12% Pb	April 2017
Pine Point (Great Slave Reef)	zinc, lead	Pine Point Mining Ltd.	Meas (R-190 deposit)	647,000 Mt	12.47% Zn, 6.10% Pb	Mar. 2014
Selwyn Project	zinc, lead, silver	Selwyn Chihong Mining Ltd.	Ind	185.6 Mt	5.20% Zn, 1.79% Pb	Aug. 2012

## 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.

This publication is produced by the Department of Industry Tourism and Investment (ITI). The Northwest Territories has one of the most diverse geological environments of any jurisdiction in Canada, one that includes the oldest rocks in the world and geological features that have resulted from modern and ongoing processes. The Northwest Territories Geological Survey (NTGS) surveys, collects, analyzes and makes available public geoscience information gathered from a variety of sources, including information on mineral deposits and geology. NTGS, ITI and the NWT and Nunavut Chamber of Mines host the Yellowknife Geoscience Forum each year in November: [www.geoscienceforum.com](http://www.geoscienceforum.com)

For more information about these deposits, please refer to Guide to Selected Mineral Deposits of the Northwest Territories

[www.iti.gov.nt.ca/en/files/guide-mineral-deposits-northwest-territories](http://www.iti.gov.nt.ca/en/files/guide-mineral-deposits-northwest-territories)

Please visit company websites for latest information.

[www.nwtgeoscience.ca](http://www.nwtgeoscience.ca)

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