

Critical Minerals and Metals in BC Mine Tailings and Waste Rock

Unearthing potential critical mineral concentrations in tailings and waste rock to help move towards net-zero goals



MEETING THE CHALLENGE

Geoscience BC is seeking partners for critical minerals and metals research that is needed for the transition to the net-zero economy. Canada produces 21 of the 31 minerals and metals on its list of critical minerals, with potential for more as global partners seek secure, responsibly-sourced, low-carbon supplies. Demand for these minerals and metals is forecast to rise significantly and rapidly.

Mine tailings and waste rock are produced as metals and minerals are mined, and historic and active sites may contain concentrations of critical minerals and metals that were not economically viable at the time of extraction. In some cases, tailings and waste rock may also present an opportunity to address environmental liabilities.

The *Critical Minerals and Metals in BC Mine Tailings and Waste Rock* project concept aims to identify economic and strategic opportunities associated with mine waste in British Columbia, and to prioritize sites for initial investigations. The project will help manage environmental and social legacies of existing and future mine tailings and waste rock by proactively investigating physical, mineralogical and geochemical properties, including initial ore characterization, mineral processing and rehabilitation.

“Ambitious climate action will bring significant demand for minerals.”

WORLD BANK MINERALS FOR CLIMATE ACTION
REPORT, 2020



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THE RESEARCH

This multiple-phase, multi-disciplinary research project will identify economic and strategic opportunities and environmental risk(s) associated with mine wastes in British Columbia, and will prioritize sites for initial investigations.

At prioritized sites, lab- and field-scale studies will be conducted, including: geochemical sampling and analysis; 3-D resource modeling; consideration of potential recovery rates, extraction methodology/ processes and extraction challenges (in-situ and/or physical extraction). Opportunities to reduce adverse environmental consequences (e.g. reusing, recycling and/or reprocessing opportunities) will be considered.

It will foster collaboration, expand research expertise and build capacity and training opportunities across the mining lifecycle, while attracting interest and support from academia, communities, Indigenous groups, governments and industry.

The project will be developed with support from Geoscience BC's Minerals TAC, and guided by a Project Advisory Committee.

BUILDING COLLABORATION

Geoscience BC is seeking partners for this research that can provide financial, in-kind, research site and other support. Initial discussions have included groups such as the University of British Columbia's Bradshaw Research Institute for Minerals and Mining and the Mineral Deposit Research Unit; BC Geological Survey; Mining Association of BC; Association for Mineral Exploration; and Regeneration Enterprises / RESOLVE. In addition, Imperial Metals, Skeena Resources, CO2 Lock Corp and FPX Nickel Corp have expressed interest in participating.

Collaborative research and open data about economic and environmental opportunities at BC's mine sites can help governments, industry, communities, Indigenous groups and academia to identify shared economic, social and environmental opportunities – with the potential in some cases to turn environmental liabilities into valuable assets.

Geoscience BC Corporate and Individual members are invited to contribute to project and theme design. Project sponsors and partners will have the opportunity to be involved through a research oversight role.



ABOUT US

Geoscience BC is a not-for-profit society providing public, independent and peer-reviewed research that makes valuable contributions to exploring for critical minerals and metals, geological carbon capture utilization and storage opportunities, generating cleaner energy (including geothermal, hydrogen and low carbon intensity natural gas) and monitoring and mitigating greenhouse gas emissions. Established in 2005, our research and data are public, incorporate robust engagement strategies and support supply chain security, reconciliation with Indigenous peoples, mitigating climate change, attracting investment and creating diverse job opportunities.

SUPPORT US!

If you are interested in talking to us about sponsorship and partnership opportunities and about Geoscience BC membership, send us an email at info@geosciencebc.com

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