

NICO Project Alberta Refinery Process Pilot Plant

Canada's path towards meeting its net zero emissions commitments is driving demand for energy storage, and critical minerals for batteries. Critical mineral supply risks include geographic concentration of critical minerals in politically unstable regions and limited domestic capacity for refining metal concentrates to manufacturer specifications. Fortune Minerals Limited is developing a vertically integrated mineral recovery project (NICO Project), comprised of a planned mine, mill and concentrator in the Northwest Territories (NWT) and a hydrometallurgical refinery in Alberta's Industrial Heartland to process concentrates. This project will pilot and test Fortune's parallel refining process. End products will be cobalt, copper, bismuth, gold, and a gypsum byproduct.



RECIPIENT:
Fortune Minerals Ltd.



PARTNERS:
Natural Resources Canada



TOTAL BUDGET:
\$1,212,711



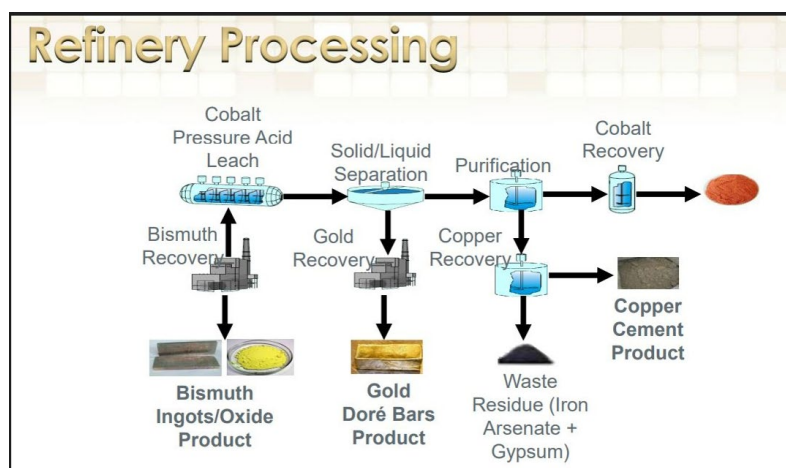
AI FUNDING:
\$172,670



PROJECT DATES:
SEP 2023 –
OCT 2025



PROJECT TRL:
Start: 5
End: 6



APPLICATION

The parallel refining processes for recovering a variety mineral from concentrate are expected to be more efficient than independent or sequential recovery of minerals from concentrate. Three of the minerals (cobalt, bismuth and copper) to be recovered are on Canada's Critical Mineral List and in demand for battery manufacturing. The fourth mineral, gold, has a variety of uses in electronics and other sectors. A refining byproduct, gypsum, has a variety of potential uses including fertilizer, cement and building products.

PROJECT GOALS

A concentrate production pilot will be set up and operated at SGS Lakefield (Ontario). The project includes:

- Establish pilot plant benchmarks and test at least 10 tonnes of ore mined and concentrated from the NICO site in Northwest Territories (NWT).
- Evaluate materials and processes, including characterization, and testing and lab analysis of feed concentrates, intermediary concentrates and end products against quality parameters.
- Separate and test ferric arsenate from the gypsum residue to confirm stability of ferric arsenate for disposal.
- Final reports will include engineering, project management and hydrometallurgical reports. Results will be shared with the minerals sector and other stakeholders.



**1 New
Product/Service**



>100 Future Jobs

BENEFITS TO ALBERTA

- Attract investment to develop the NICO mine in the Northwest Territories and the Alberta NICO refinery.
- Potential for the NICO refinery to process minerals from existing and future mines, and mineral rich waste streams within our outside Alberta.
- Help build Alberta's capacity and reputation in the domestic battery value chain
- Create opportunities for new jobs in a low carbon economy.
- Stimulate related research and highly qualified and skilled personnel (HQSP) development at Alberta post-secondary institutions.
- Reduce Canada's reliance on higher-risk sources of critical minerals.
- Foster economic partnerships between Alberta, the Northwest Territories, and Indigenous groups.

CURRENT STATUS

JUN 2025

Test work design, ore transport, concentrate production and initial testing for bismuth, cobalt, and gold production has been completed with additional testing underway. Some work completed to date on gypsum production. A scope change to provide additional time for testing and concentrate generation has been submitted.