



OPERATIONAL UPDATE

Building a Copper Development Company

MURDIE and TORRENS: **Massive Copper Targets**

LUMWANA WEST: **Advanced Copper-Cobalt Deposit**

LINDSAY OWLER, Director/CEO – September 2020

Argonaut Resources NL • ASX:ARE •
Level 6, 100 Pirie Street, Adelaide, SA, 5000 +61 8 8231 0381

CORPORATE OVERVIEW

ASX Code

ARE

Capital structure

Shares on issue: 1.966 billion
Unlisted options: 100 million
Market capitalisation: A\$16 million
Average turnover: 5 million shares

Cash A\$600,000

Directors

Pat Elliott Non-Executive Chairman
Lindsay Owler Director and CEO
Andrew Bursill Non-Executive Director
Malcolm Richmond Non-Executive Director



INTRODUCING ARGONAUT

- Argonaut (ASX: ARE) is an ASX listed mineral exploration company focused on copper exploration at its Murdie project, east of Olympic Dam and Carrapateena mines in South Australia.
 - Argonaut expects notification in the coming weeks regarding its final access permit prior to drilling 5 deep drill holes into large, prospective copper targets.
- Argonaut also operates a portfolio of attractive copper licences within the Central African Copperbelt in North-western Zambia. Argonaut is conducting a scoping economic study into production from its Nyungu copper-cobalt deposit at Lumwana West.
 - Flotation testwork has been completed.
 - Leaching, oxidation and SX-EW commencing.
- The Company operates a gold and nickel exploration earn-in joint venture at Higginsville in the Western Australia Goldfields.
- Argonaut currently holds a 100% interest in an unlisted public company called Orpheus Minerals Ltd.
 - Orpheus has assembled a portfolio of uranium assets in Australia’s uranium production corridor – South Australia and Northern Territory.
 - The tenement package includes:
 - advanced in-situ recovery (roll front) targets in South Australia; and
 - hard rock, unconformity style uranium targets in the Northern Territory.



COPPER FOCUS

South Australian Copper

- **Murdie Project** IOCG
- **Torrens Project** IOCG

Massive systems, pedigree geology

Zambia Copper Cobalt

Lumwana West

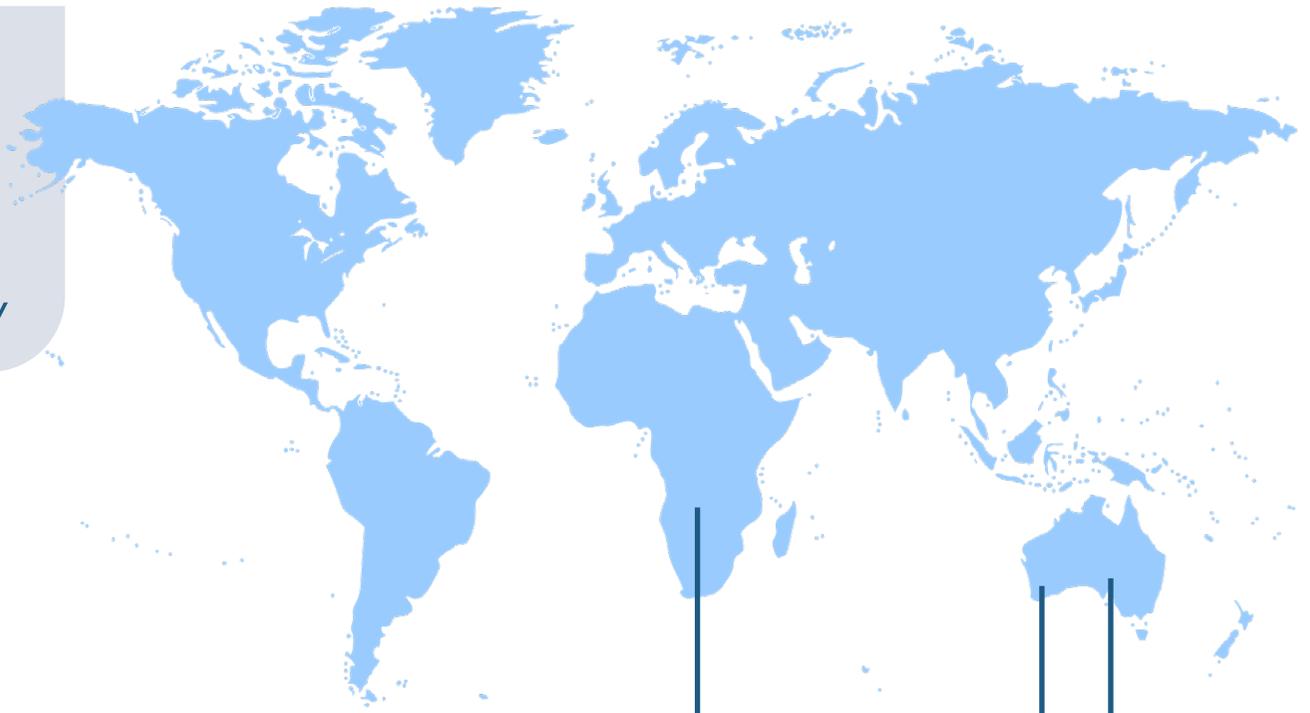
- Copper Cobalt scoping study

New exploration projects

- Heart of Zambian gold rush

Higginsville – Gold, WA

- Multiple gold and nickel targets



Zambia Copper Cobalt

Lumwana West

WA Gold

Higginsville

Torrens Copper
Murdie Copper

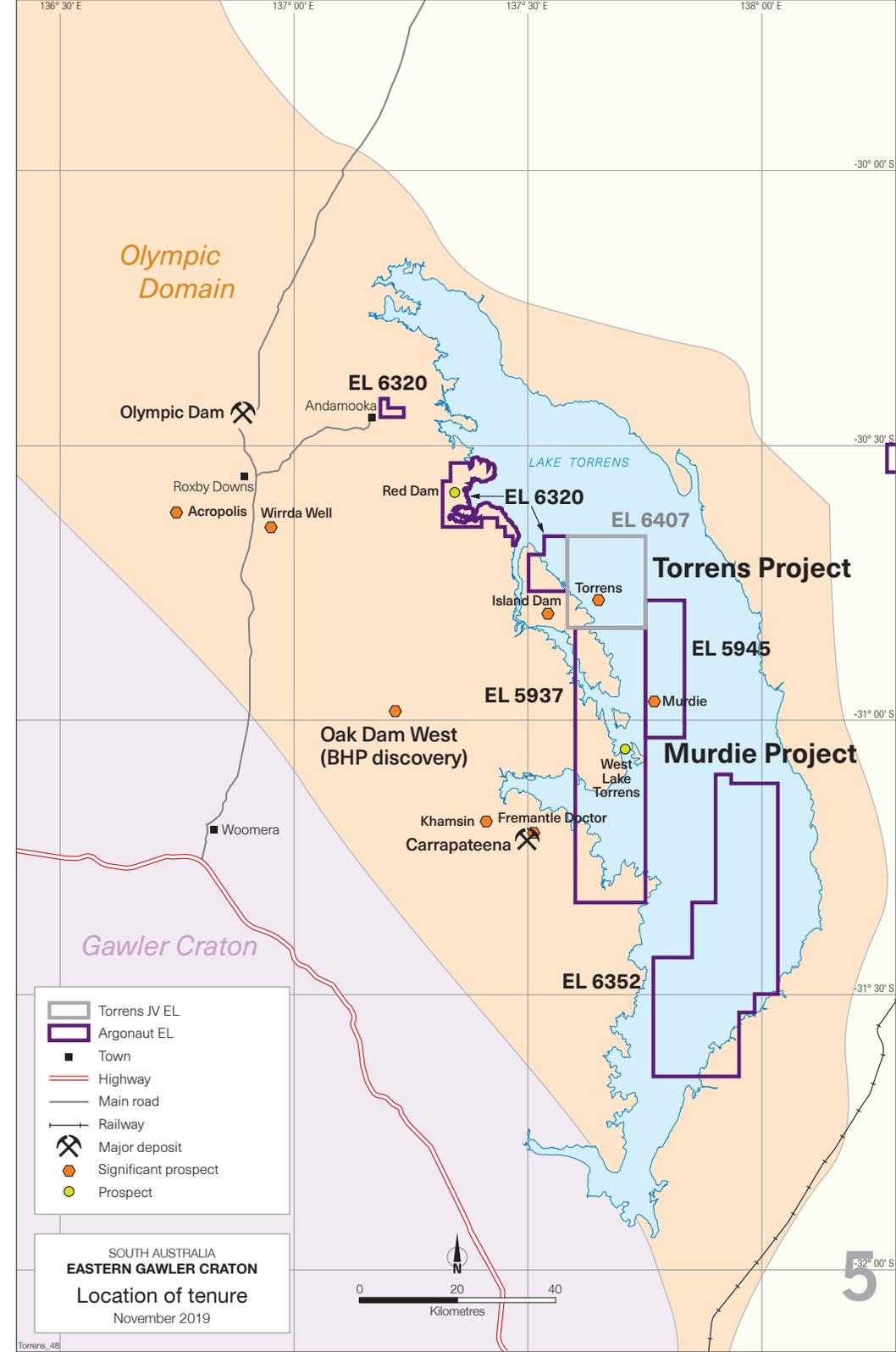
South Australia

SOUTH AUSTRALIAN COPPER

Murdie Project

Torrens Project

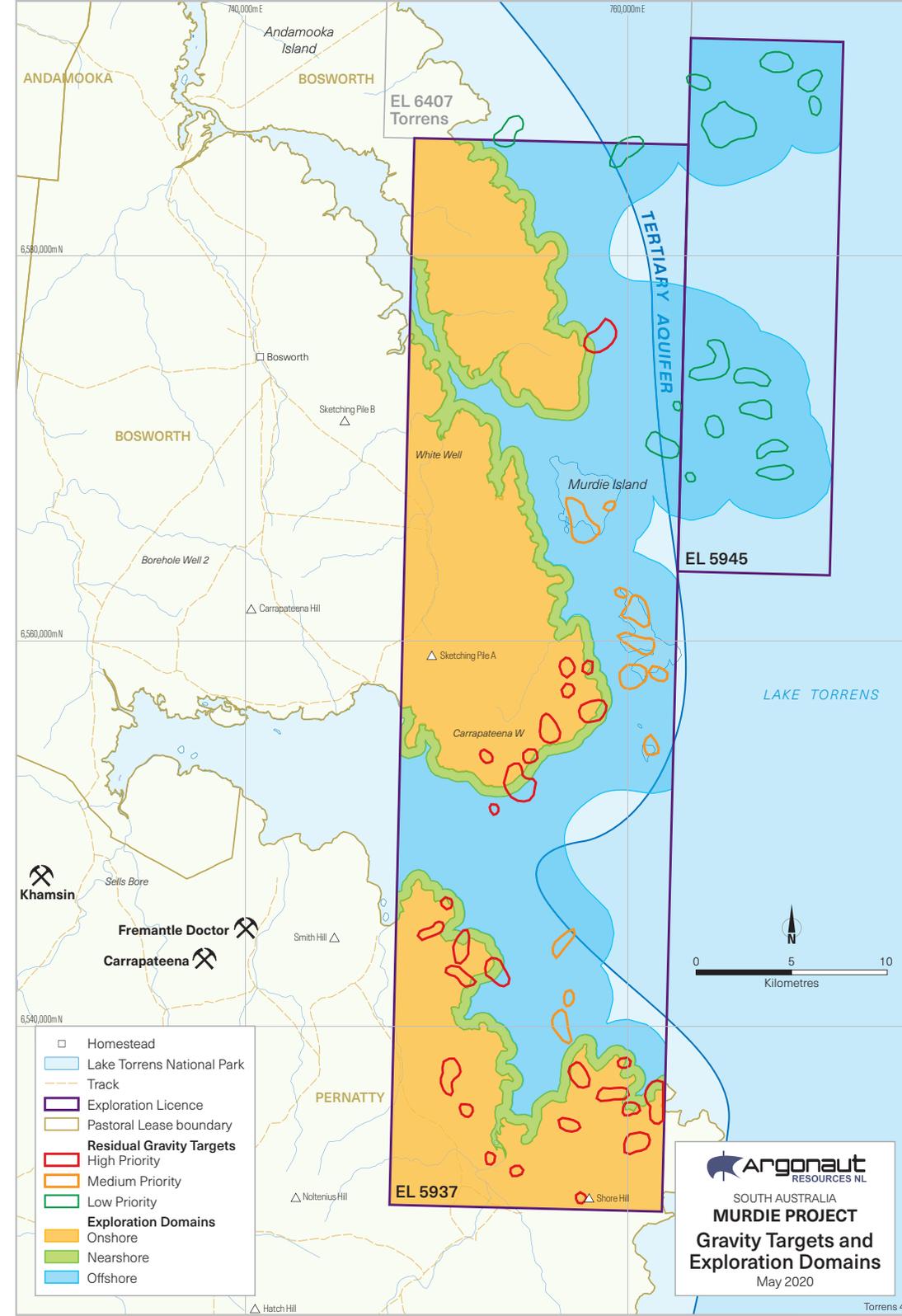
1. The right geological address.
2. Massive anomaly with multiple deposit-scale target zones.
3. Confirmed Iron Oxide-Copper-Gold (IOCG) systems.



MURDIE, SOUTH AUSTRALIA

Gravity Targets and Exploration Domains

- Over 50 IOCG gravity targets across three exploration domains:
 - » **Onshore**
 - » **Nearshore**; and
 - » **Offshore**
- Priority targets hosted in or on the margin of Donnington Suite Granite.
- Donnington Suite Granite is the host of the nearby Oak Dam and Carrapateena IOCG deposits.



MURDIE, SOUTH AUSTRALIA

Operational Domains and Drilling Techniques

DRILLING TECHNIQUES

	Helicopter Supported	Artesian Groundwater	Percussion Pre-Collar
Onshore	No	No	Yes
Nearshore	No	No	Yes
Offshore – No Aquifer	Yes	No	No
Offshore – Aquifer	Yes	Yes	No

Murdie features many excellent IOCG targets plus flexible drilling options.

MURDIE, SOUTH AUSTRALIA

Permitting

Three authorisations are required for nearshore and offshore drilling at Murdie:

1. **NATIVE TITLE** – granted in 2018.
2. **OPERATIONAL** – granted January 2020.
3. **ABORIGINAL HERITAGE** – consultation completed. Consideration by Minister.

Argonaut plans to commence drilling at the Murdie project on receipt of the final permit.

TORRENS, SOUTH AUSTRALIA

2019 Drilling

- After a multi-year permitting process, Argonaut's joint venture partner, Aeris Resources Ltd, unilaterally ceased drilling at Torrens after two drill holes in an agreed eight to ten hole program.
- Argonaut is focused on sensible pathways to the recommencement of systematic drill testing of the Torrens anomaly under a pro-rata 30:70 joint venture.

Argonaut 30%



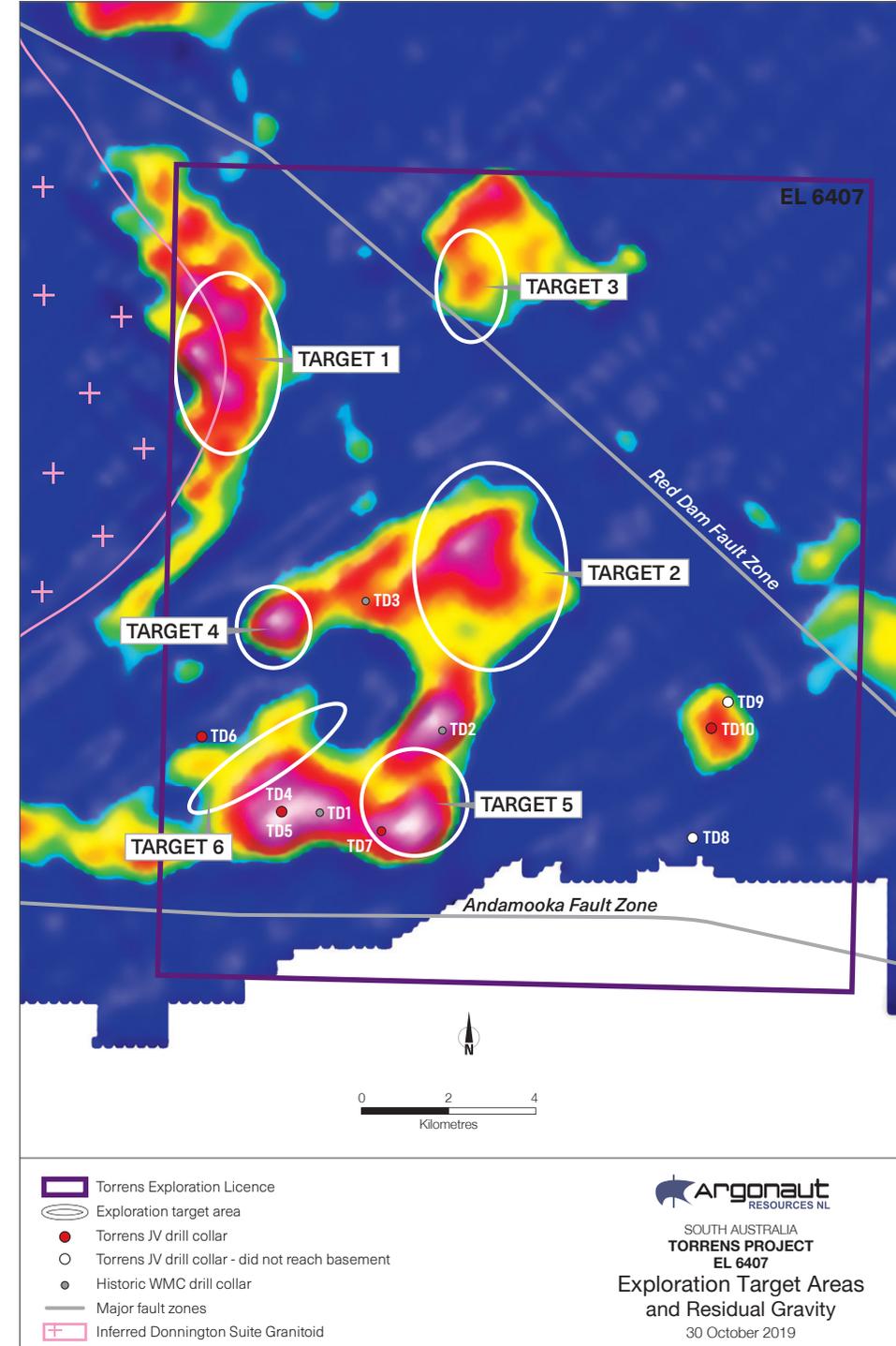
TORRENS, SOUTH AUSTRALIA

Exploration Potential

The prospectivity of the Torrens Project remains intact

- The Torrens anomaly is a particularly attractive set of exploration targets.
- The Eastern Gawler Craton has persistently rewarded explorers with large, high-grade copper discoveries.
- The discovery of an IOCG deposit by a listed exploration company creates a once-in-a-lifetime opportunity for shareholders.
- Argonaut continues to work towards this goal.

No gravity anomaly in the Eastern Gawler Craton should go undrilled given the spectacular success rate from drilling to date.



LUMWANA WEST, ZAMBIA

Large tonnage copper-cobalt sulphide

- Low stripping ratio
- Saleable concentrate produced
- Scoping study progressing
- Argonaut 90%



LUMWANA WEST, ZAMBIA

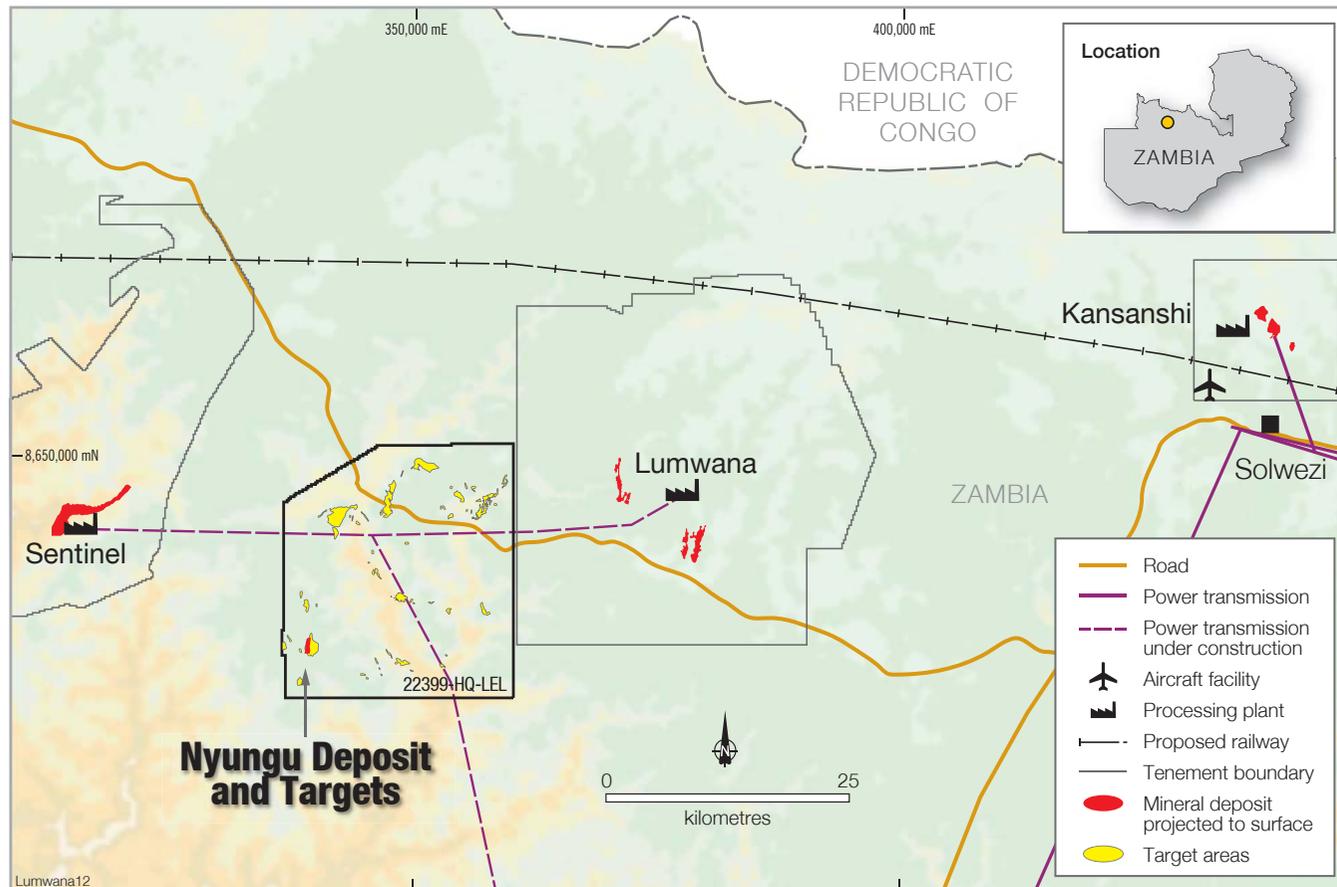
Project elements

Jurisdiction	Zambia has a long history of large-scale copper mining. Social and governmental pressures favour the development of new mines.
Infrastructure	Lumwana West is located at major electricity and transport corridors.
Resource	The Nyungu copper-cobalt deposit has predictable geometry and scope for significant growth with continued drilling.
Mining	Very low stripping ratio of 1.5 tonnes of waste rock from every 1 tonne of ore. Resource drilling to greater depths is warranted.
Processing	Fast, high copper recovery flotation of both transitional and primary copper ore minerals.
Economics	Scoping economic study commencing.

The Nyungu deposit continues to impress with excellent technical characteristics.

LUMWANA WEST, ZAMBIA

Infrastructure



Mine developments at Kansanshi, Lumwana and Sentinel brought essential infrastructure to North Western Zambia.



LUMWANA WEST, ZAMBIA

Nyungu Copper-Cobalt Deposit

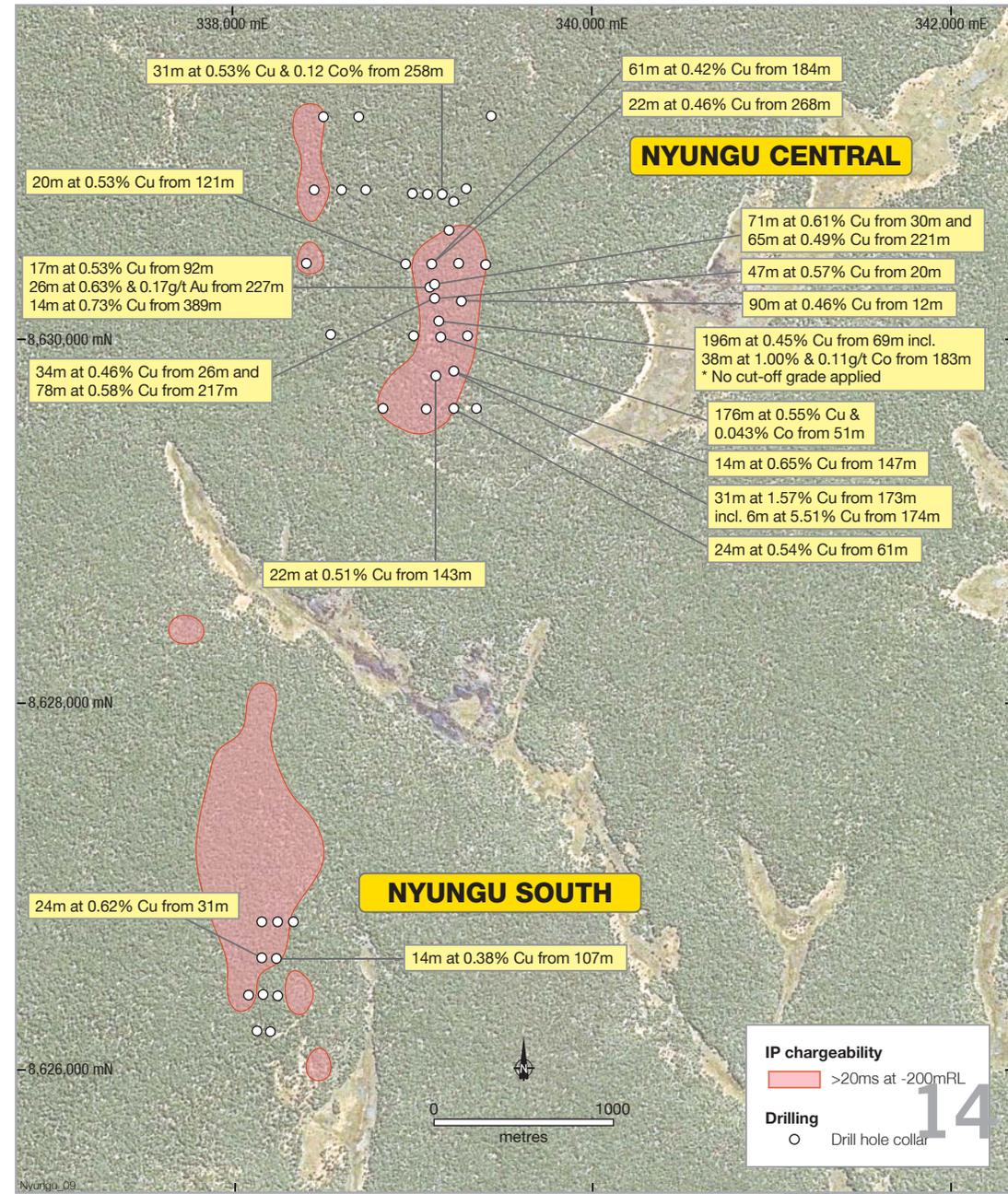
Nyungu

- **NYUNGU CENTRAL:** deposit defined by 48 modern drill holes – significant mineralised copper-cobalt body.

Demonstrated strike length: 1,700m

- **NYUNGU SOUTH:** edge of mineralised body intercepted by Argonaut drilling. Vast, undrilled IP anomaly to be tested.
- **NYUNGU WEST** and **NYUNGU NORTH:** drilling to date has not accounted for IP anomalies.

Major copper-cobalt deposit with potential for large extensions and repetitions



LUMWANA WEST, ZAMBIA

Nyungu Exploration Target

Commodity	Tonnage Range	Grade Range	Contained Metal Range
	(Mt)	(%)	(kt)
Copper*	130 to 180	0.45 to 0.65	580 to 1,150
Cobalt^	15 to 20	0.08 to 0.12	12 to 24

* Copper Exploration Target estimation announced to the ASX by Argonaut on 9 April 2013.

^ Cobalt Exploration Target estimation announced to the ASX by Argonaut on 28 March 2017.

Exploration Targets have been independently estimated to JORC 2012 standards.

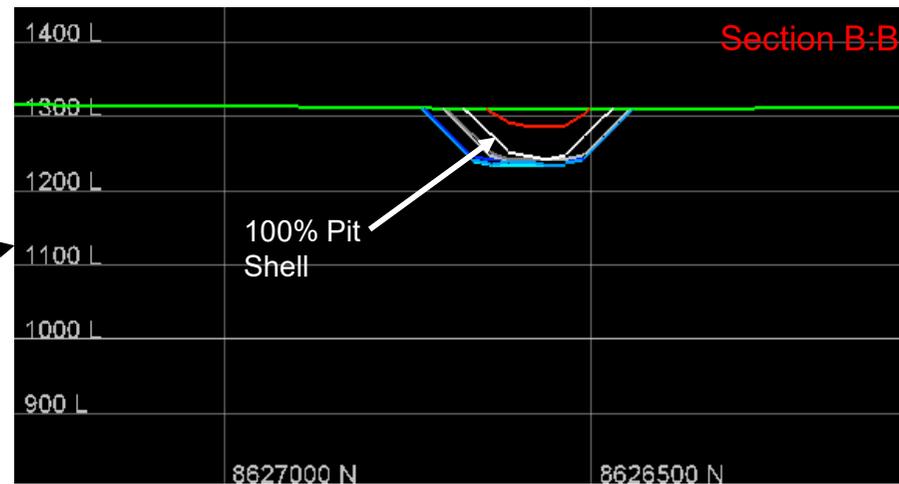
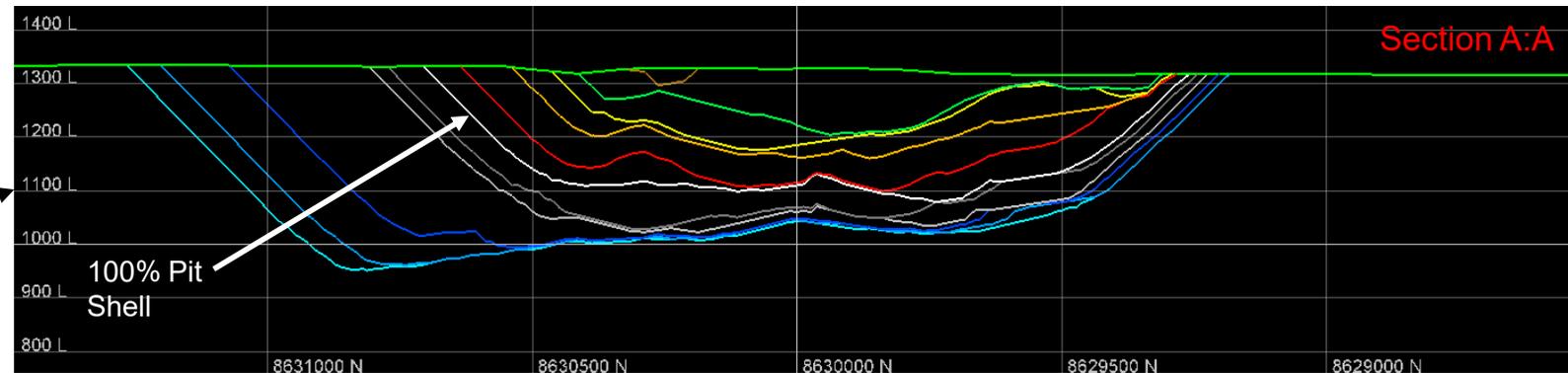
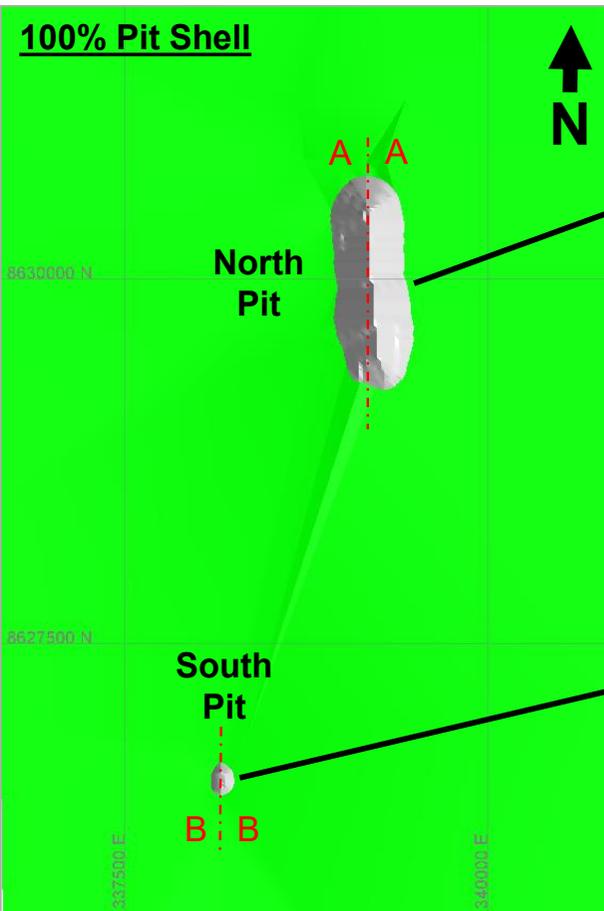
The potential quantity and grade of the Exploration Targets are conceptual in nature. There has been insufficient exploration to estimate a Mineral Resource and it is uncertain if further exploration will result in the estimation of a Mineral Resource.

Sections of information contained in this report that relate to Exploration Results were compiled or supervised by Mr Lindsay Owler BSc, MAusIMM who is a Member of the Australasian Institute of Mining and Metallurgy and is a full-time employee of Argonaut Resources NL. Mr Owler holds shares and options in Argonaut Resources NL, details of which are disclosed in the Company's 2019 Annual Report. Mr Owler has sufficient experience which is relevant to the style of mineral deposits under consideration and to the activity which he is undertaking to qualify as a Competent Person as defined in the 2012 edition of the "Australasian Code for Reporting of Mineral Resources and Ore Reserves". Mr Owler consents to the inclusion in this report of the matters based on his information in the form and context in which it appears.

LUMWANA WEST, ZAMBIA

Very Low Stripping Ratio

Whittle Pits



- Stripping ratio 1.5:1 to 280m (white line)
- Stripping ratio of 2.3:1 to >350m (light blue line)

LUMWANA WEST, ZAMBIA

Metallurgical testwork

- ✓ Mineralogy
- ✓ Comminution
- ✓ Flotation
- Leaching
- SX/EW
- Results indicate that a flotation circuit can achieve high recovery from both:
 - **Transitional zone copper minerals (88% recovery); and**
 - **Primary zone copper sulphides (up to 96% recovery).**



LUMWANA WEST, ZAMBIA

Next steps

Metallurgy

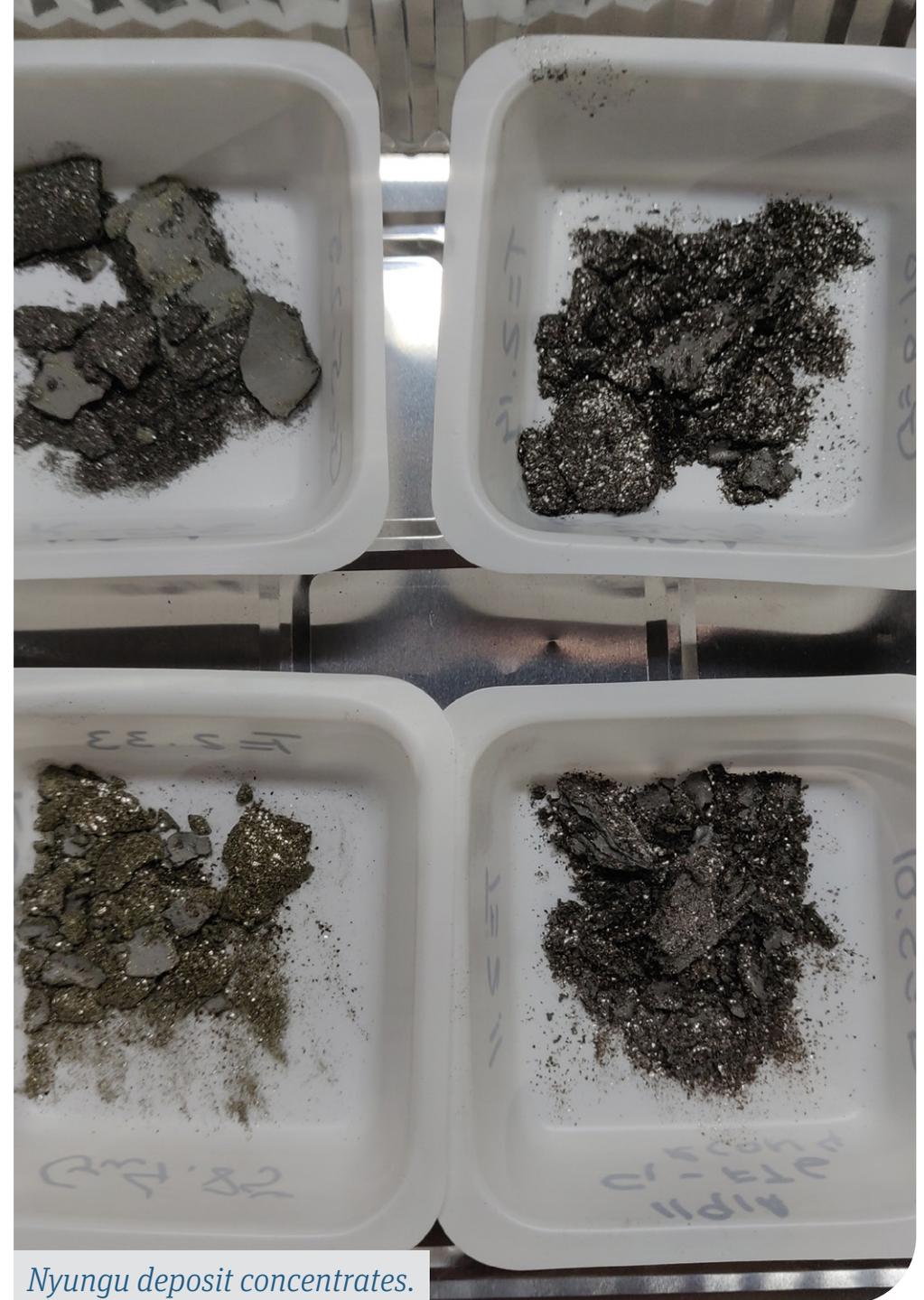
- Various oxidation and leaching tests.
- Solvent extraction and electro winning (SX/EW).

Mining engineering

- Mine scheduling scenarios.

Scoping economics

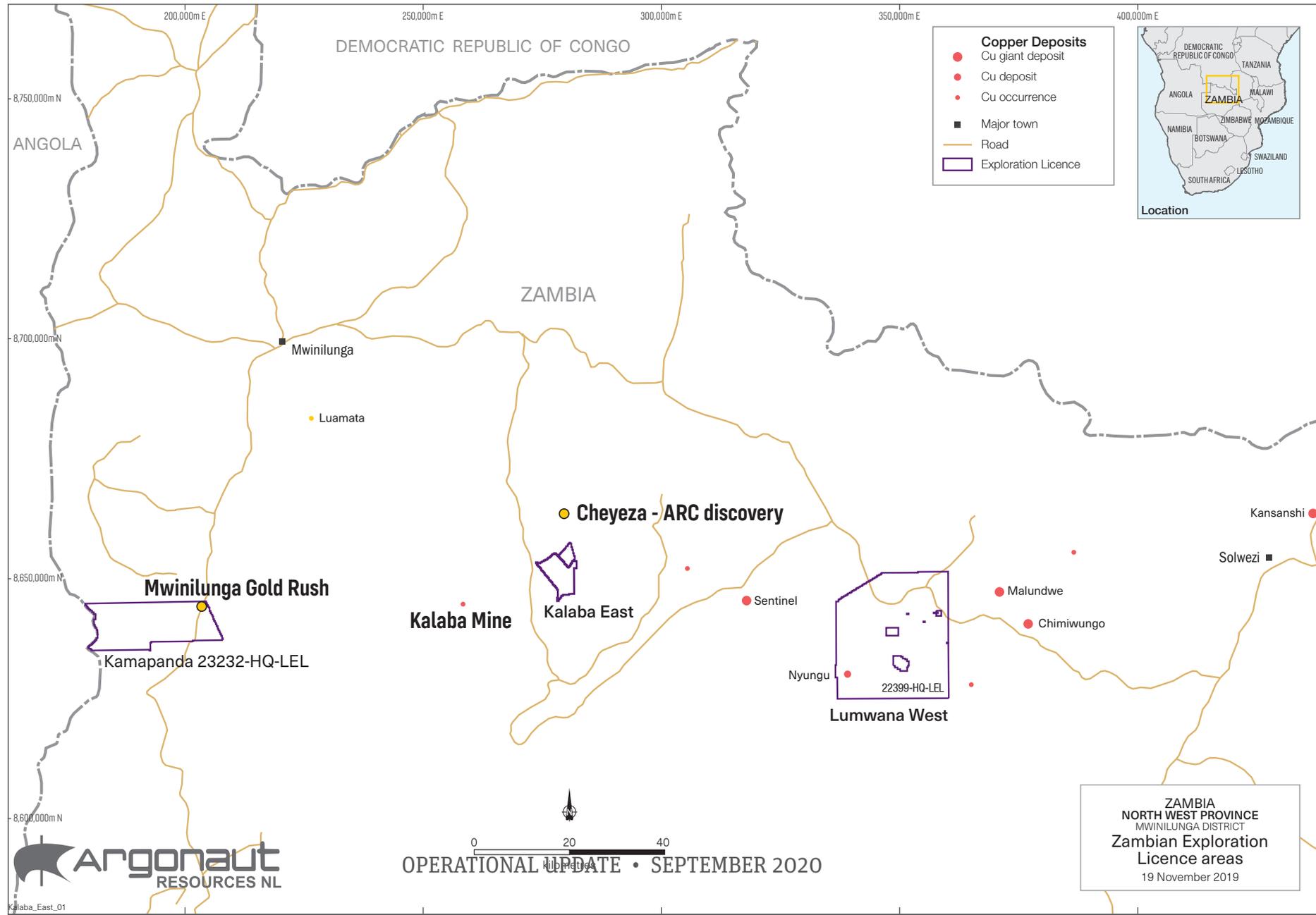
- Assess processing options for development of process flowsheet.



Nyungu deposit concentrates.

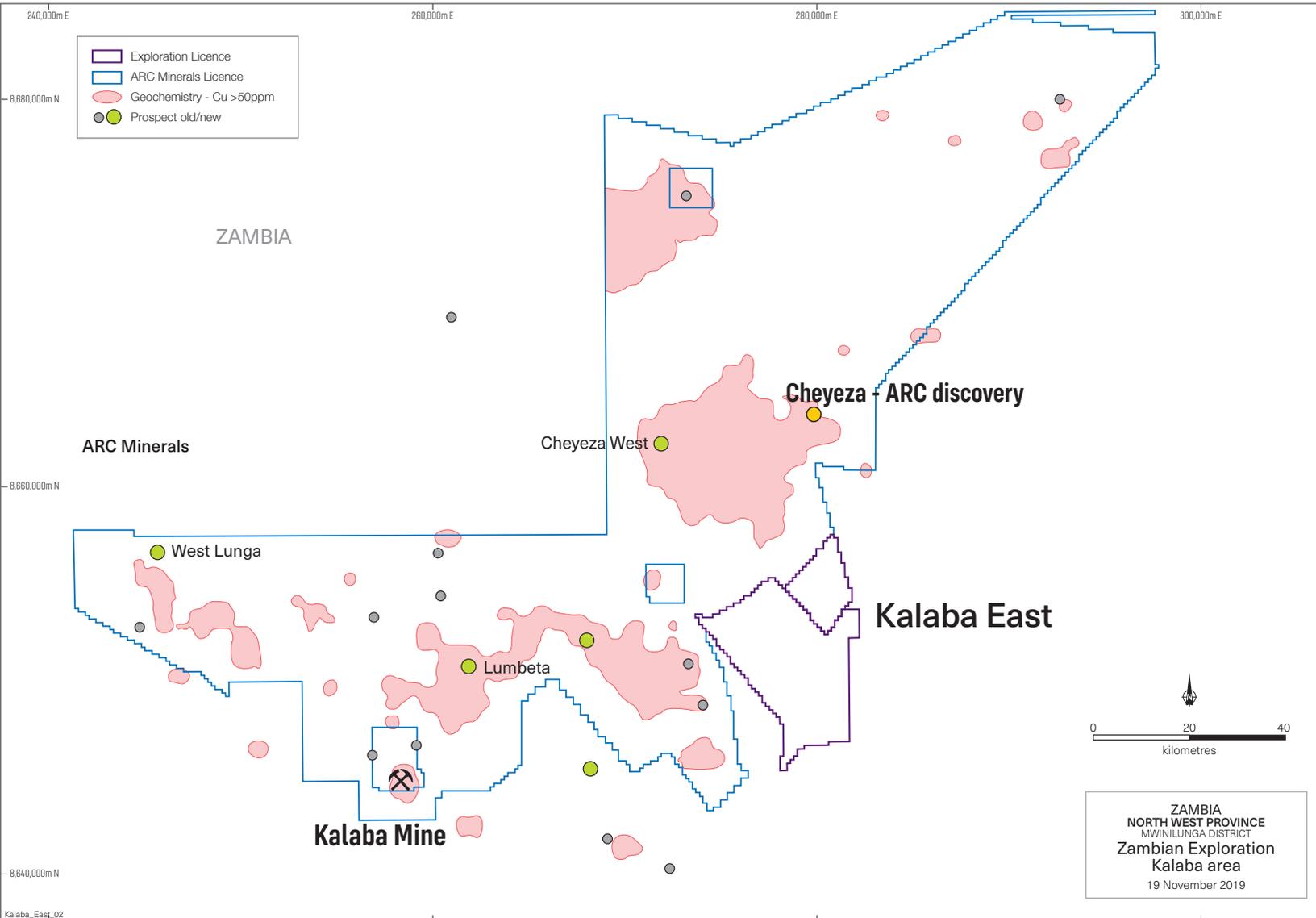
MWINILUNGA, ZAMBIA

New exploration projects



MWINILUNGA, ZAMBIA

New exploration projects: Kalaba East



Newly granted licences adjacent to ARC Minerals' Cheyeza discovery.

