Argonaut RESOURCES NL

ASX announcement

6 April 2018

Large-scale cobalt potential identified at Nyungu

Argonaut Resources NL (ASX: ARE) (*Argonaut* or the *Company*) is pleased to announce preliminary details of potential copper and cobalt production at the Nyungu copper-cobalt deposit in North-western Zambia.

The Nyungu copper-cobalt deposit is part of the Lumwana West project, located 65km south of the DRC border in North-western Zambia.

Highlights

Cobalt deposit

- Existing drilling by **Argonaut has defined between 12,000 and 24,000t of contained cobalt** at the Nyungu deposit (Table 1 and Figure 4).
- Planned follow-up drilling at Nyungu is likely to increase cobalt and copper tonnages.

Exploration upside

- Peak cobalt in diamond drilling is: **81.5m at 0.12% cobalt** from 183m, including **23m at 0.21% cobalt** from 218.5m in drill hole NYRD046.
- Further drilling of shallow oxide and transitional zones and the northern, down-plunge extension of Nyungu Central (Figure 4) is likely to yield greater tonnages at encouraging grades.
- Argonaut has collected soil samples over the entire Lumwana West licence area and each of these samples was analysed for a suite of elements, including cobalt. Several high-order cobalt soil anomalies have been identified for follow-up exploration (Figure 6).
- **Peak cobalt in soil is 0.15%**.

Metallurgical testwork

- **Potential exists for a two-stage, low capital cost, short lead-time copper-cobalt mine.**
  - ¬ Stage one – dense media separation of cobalt oxide.
  - ¬ Stage two – heap leach and solvent extraction of copper and cobalt sulphides.
- Metallurgical samples have been selected from existing drill core and these samples are being exported to Australia for testwork.
- Initial testwork will involve a mineralogical study of four mineralisation types.
- Follow-up metallurgical work may include:
  - ¬ dense media separation of copper and cobalt oxide;
  - ¬ leaching of copper and copper-cobalt sulphide; and
  - ¬ conventional flotation of copper-cobalt sulphide.

Mining study

- Preliminary open pit optimisation by RPM shows excellent deposit geometry via a very low stripping ratio (Figure 5).
  - ¬ **stripping ratio of 1.5 to 1** for the optimum pit at the current copper price; and
  - ¬ stripping ratio of 2.3 to 1 to a depth of >300m at 150% of the current copper price, indicating the deposit has a low sensitivity to stripping ratio.
- RPM concluded the project had economic potential and warrants further studies.

Tenure

- The Lumwana West large-scale exploration licence was recently reissued for a maximum period of 11 years.

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Cobalt deposit

The Nyungu Copper-Cobalt Deposit was drilled by Argonaut in 2011 and 2012. 48 drill holes for 9,019m were considered by RPM in its recent studies of Nyungu. This drilling targeted copper mineralisation, rather than cobalt, due to the metal prices at the time.

Cobalt mineralisation tends to sit at the footwall of the Nyungu Central Deposit in a relatively predicable manner (Figure 1 and 2). Cobalt grades are typically 0.1%. Wide, high grade-zones, such as **23m at 0.21% cobalt**, have been intercepted.

Three cobalt domains have been defined using wireframes for estimation purposes (Figure 4). These cobalt domains sit within the envelope of copper mineralisation (Figures 1-2 and 3-4).

Copper and cobalt Exploration Targets

RPM have previously estimated Exploration Targets for both copper and cobalt mineralisation at Nyungu. These are shown below in Table 1.

Table 1: *Nyungu March 2017 Exploration Target*

Commodity	Tonnage range (Mt)	Grade range (%)	Contained metal range (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

The potential quantity and grade of the Exploration Target is 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.

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

^ *Cobalt Exploration Target announced to the ASX by Argonaut on 27 March 2017.*

Both Exploration Targets are estimated to JORC 2012 standards.

Argonaut is planning to undertake a drilling program of at least 3,000 metres as soon as possible.

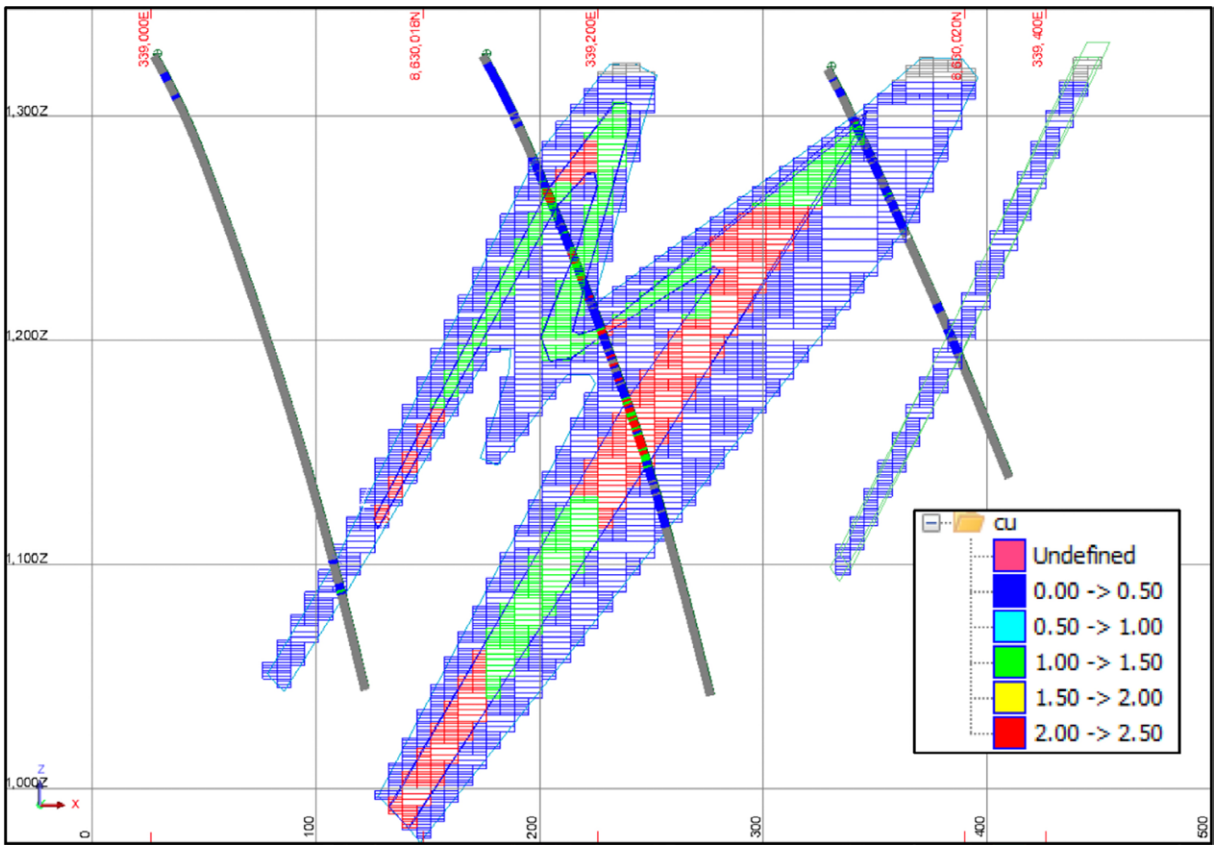


Figure 1 *Copper Exploration Target estimation cross section showing copper grade (%). Looking north.*

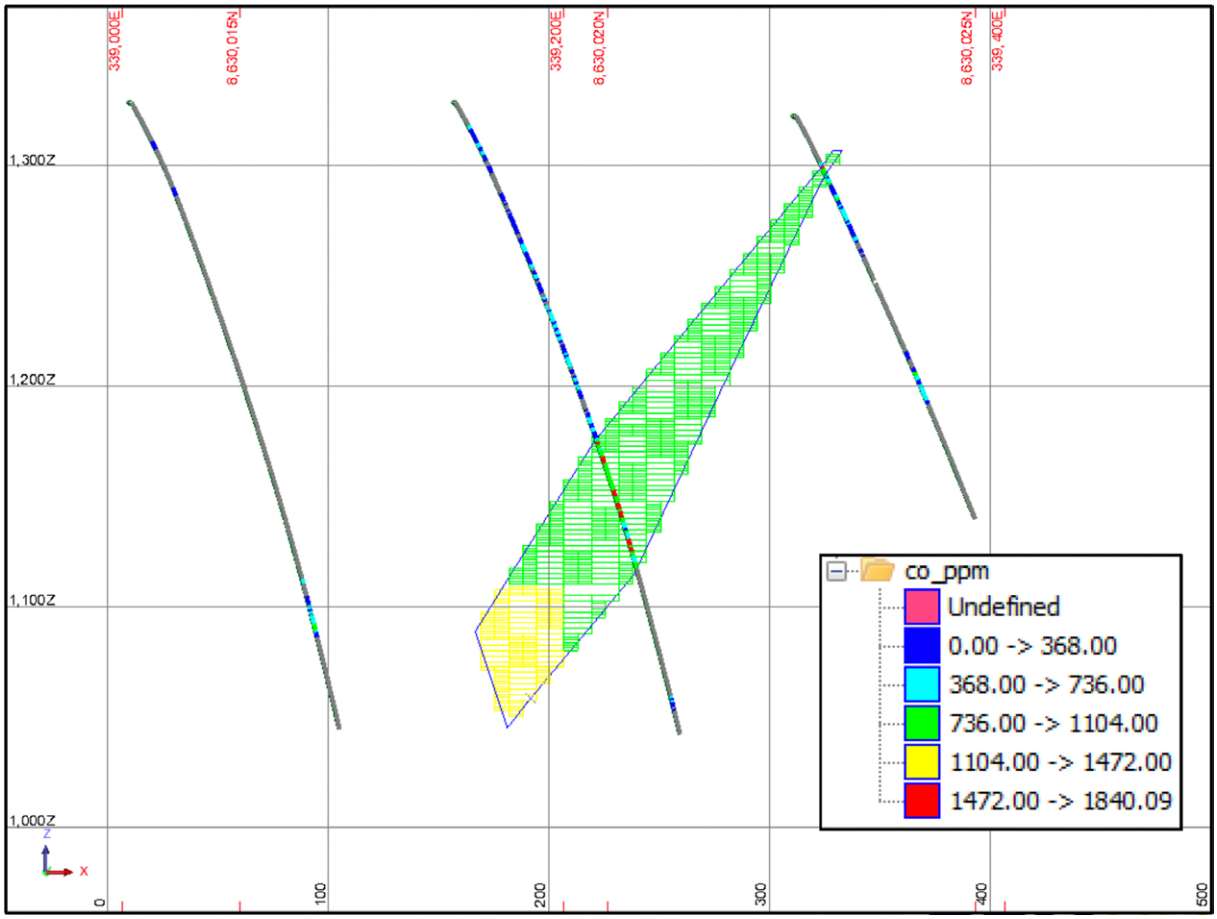


Figure 2 *Cobalt Exploration Target estimation cross section showing cobalt grade (ppm). Looking north.*

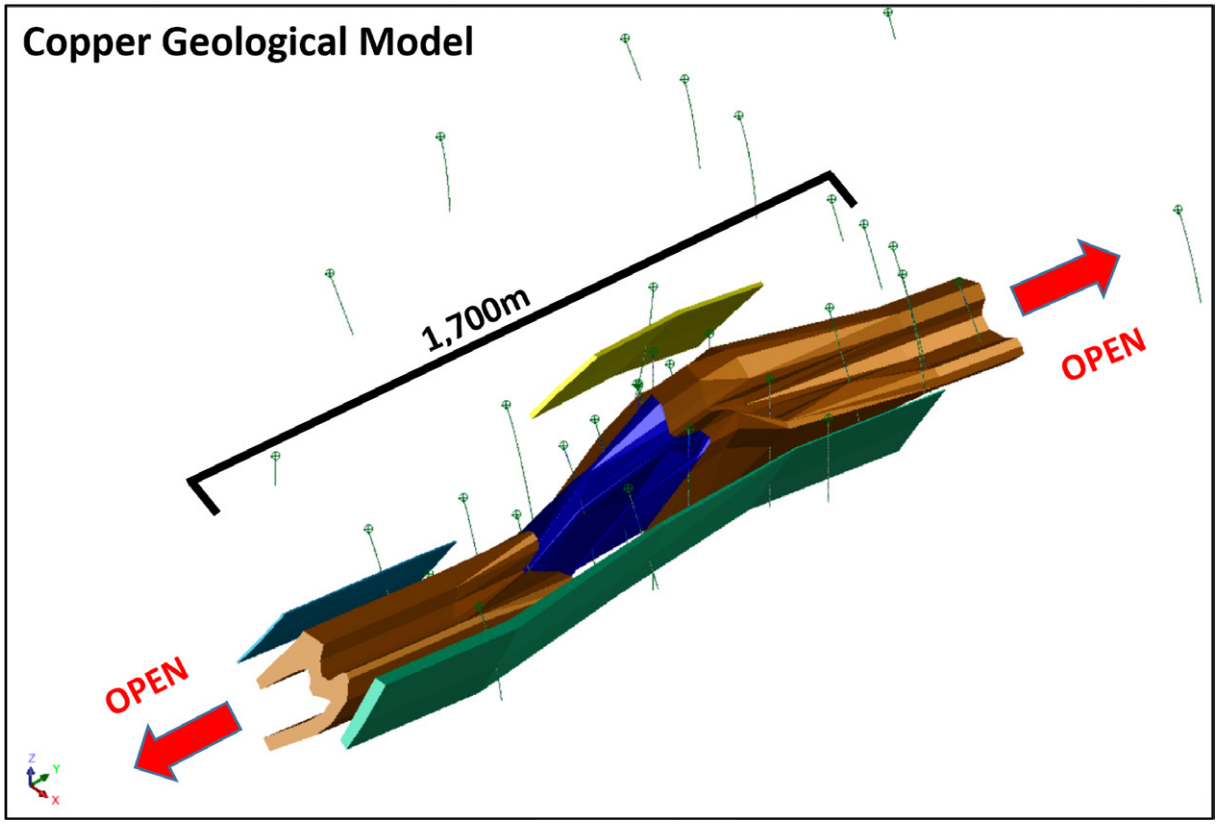


Figure 3 *Nyungu Central, copper wireframes. Oblique view.*

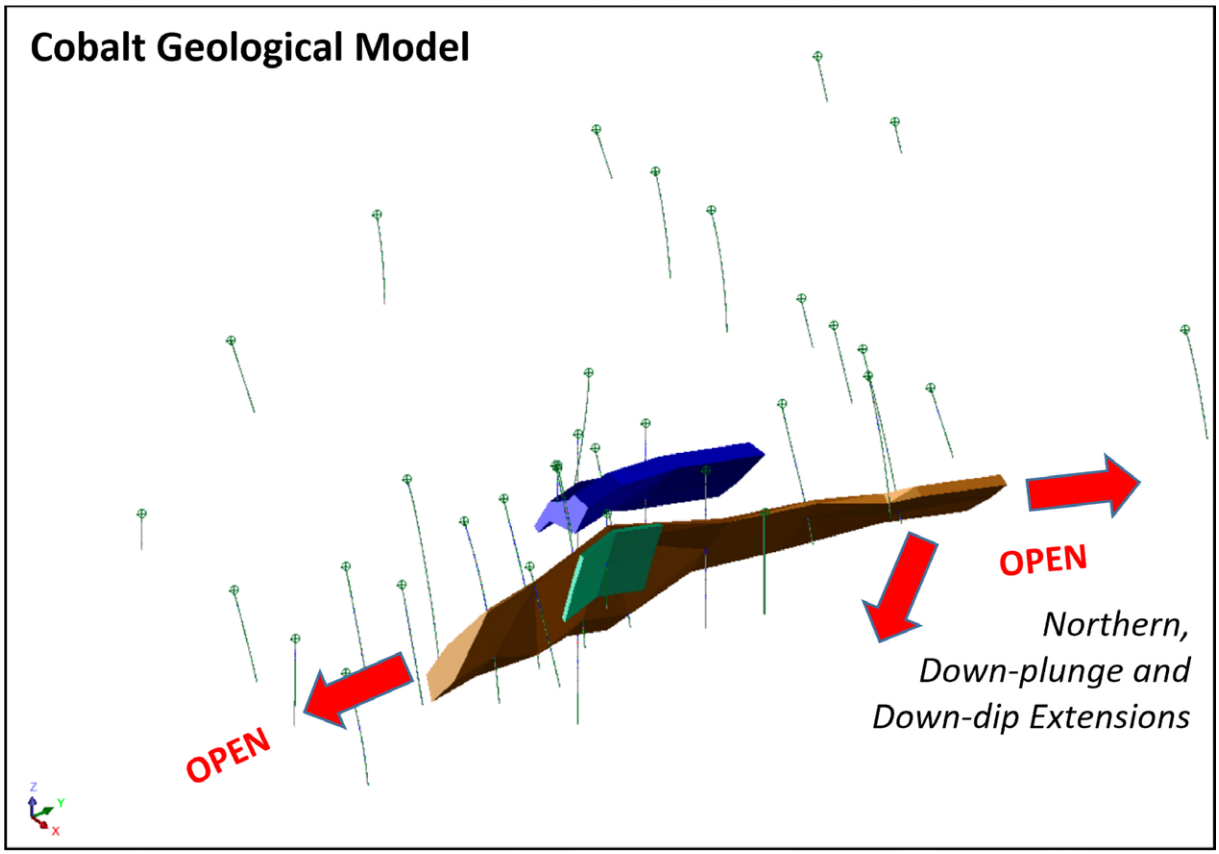


Figure 4 *Nyungu Central, cobalt wireframes. Oblique view.*

Cobalt drill results

Highlights of previous cobalt drilling at Nyungu by Argonaut are shown in table 2.

Table 2: *Nyungu copper-cobalt deposit – cobalt drill intercepts*

Hole	From (m)	Interval (m)	Co (%)	Cu (%)
NYU11RD001	37	120.0	0.06	0.34
Including	104	**26.0**	**0.13**	0.28
NYU11RD010	155	72.0	0.08	0.61
Including	167	**38.0**	**0.10**	0.91
NYU11RD013	31	1.0	0.56	0.57
NYU11RD022	12	88.2	0.07	0.47
Including	42	**10.0**	**0.19**	0.61
NYRD031	236	59.9	0.07	0.50
Including	237	**22.0**	**0.13**	0.58
NYRD038	258	**29.0**	**0.12**	0.55
Including	259	**21.0**	**0.16**	0.57
NYRD044	181.5	12.2	0.10	0.18
Including	186.8	**6.0**	**0.16**	0.24
NYRD045	38.5	69.0	0.06	0.58
Including	93	8.0	0.11	0.29
NYRD046	183.4	**81.5**	**0.12**	0.71
Including	218.5	**23.0**	**0.21**	0.51
MM296	88	53.0	0.05	0.30
Including	90	**12.0**	**0.13**	0.50

Resource upgrade

COBALT OXIDE

Initial drilling targeted fresh copper sulphide mineralisation i.e. copper mineralisation below the weathered (oxide and transitional) zones. Consequently, very few existing drill holes intercept mineralisation in these weathered zones.

A program of shallow drilling has the potential to significantly upgrade copper and copper-cobalt mineralisation in the oxide and transitional zones. This is particularly significant because of the favourable metallurgical properties of cobalt oxide. Much of the cobalt produced in the DRC is mined from cobalt oxide deposits.

Argonaut plans to target these zones for drilling that will provide both resource estimation data and metallurgical sample for dense media separation and leach testwork.

COBALT SULPHIDE

The Nyungu Central deposit plunges gently to the north. Existing drill holes targeted this plunging mineralisation to approximately 300m below the surface. The cobalt grades increase down-plunge and copper grades stay roughly consistent.

The preliminary mining study, discussed below, clearly demonstrates that deeper drilling is now warranted at Nyungu Central due to the low stripping ratio, favourable deposit geometry and increased cobalt value. This drilling will increase the contained tonnages of both copper and cobalt.

Metallurgical testwork

Argonaut has identified the potential for a two-stage, low capital cost, short lead-time copper-cobalt mine. The high-priority processes for investigation are:

- Stage one – dense media separation of cobalt oxide.
- Stage two – heap leach and solvent extraction from copper and cobalt sulphides.

As is commonly the case, contained copper and cobalt is within three weathering zones: oxidised, transitional (mixed oxide and sulphide), and fresh (sulphide). Each of these zones presents demonstrated metallurgical opportunities for production.

Metallurgical samples have been selected from existing drill core and these samples are being exported to Australia for testwork. Initial testwork will involve a mineralogical study of the four mineralisation types. Results of this initial work will direct further testwork and infill drilling at Nyungu Central.

Follow-up metallurgical work may include:

- dense media separation of copper and cobalt oxide;
- leaching of copper and copper-cobalt sulphide; and
- conventional flotation of copper and copper-cobalt sulphide.

Mining study

RPM conducted a preliminary open pit optimisation study on the Nyungu Central and Nyungu South deposits. The modelling was conducted for copper production only using costs from similar mines. The results were highly encouraging.

Modelling shows excellent deposit geometry via a very low stripping ratio (Figure 5).

- stripping ratio of 1.5 to 1 for the optimum pit at the current copper price; and
- stripping ratio of 2.3 to 1 to a depth of >300m at 150% of the current copper price, indicating the deposit has a low sensitivity to stripping ratio.

RPM concluded the project had economic potential and warrants further studies.

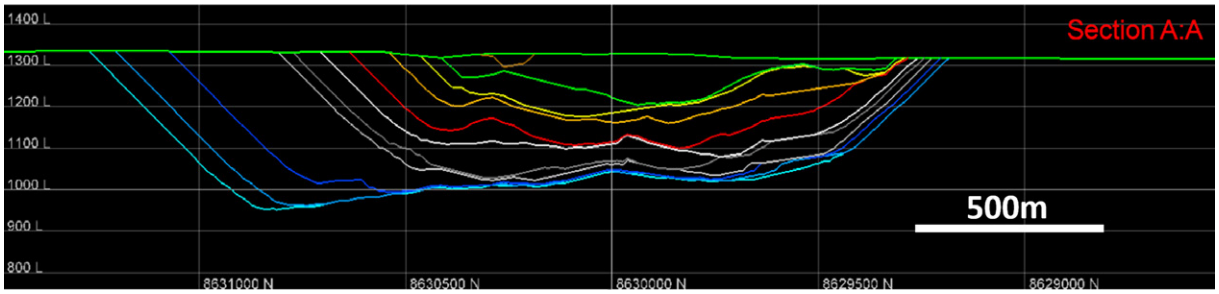


Figure 5 *Nyungu Central long-section, looking east. Preliminary pit optimisation open pit shells. White shell has a stripping ratio of 1.5 to 1 and reflects the optimisation at the current copper price. The light blue shell has a stripping ratio of 2.3 to 1 and is economic at 150% of the current copper price.*

Exploration upside

DRILLING

Of the 48 drill holes completed at Nyungu targeting copper, 10 intersected significant cobalt mineralisation (Table 2). Since cobalt was not specifically targeted during previous campaigns, scope remains for a meaningful upgrade of cobalt tonnages and grades.

Previous drilling targeted fresh (unweathered) copper sulphides and in doing so left excellent scope to drill and define additional copper and cobalt in the oxide and transitional zones. Cobalt oxide tonnages are particularly interesting due to potential low-cost, short lead-time processing options.

There is also significant potential to increase known volumes of copper-cobalt sulphide mineralisation. Peak cobalt in existing diamond drilling is **81.5m at 0.12% cobalt** from 183m, including **23m at 0.21% cobalt** from 218.5m in drill hole NYRD046. The recently completed mining study shows that further deep drilling is warranted due to excellent deposit geometry, hence low stripping ratios at depth. Further drilling of the northern, down-plunge extension of Nyungu Central (Figure 4) is likely to yield greater tonnages at an encouraging cobalt grade.

REGIONAL EXPLORATION

Argonaut has collected soil samples over the entire Lumwana West licence area and each of these samples was analysed for a suite of elements, including cobalt. Several high-order cobalt soil anomalies have been identified for follow-up exploration (Figure 6).

Peak cobalt in soil sampling is 0.15%.

Tenure

The Lumwana West large-scale exploration licence was recently reissued for a maximum period of 11 years. The new licence was granted on 29 December 2017 and cadastral system was recently updated to reflect the grant. The licence covers 568 square kilometres.

Cobalt production impediments – why Zambia?

Recent battery-related demand for cobalt has exposed the fragile nature of cobalt supply. Over 70% of the world's cobalt is coming from the DRC, one of the world's riskiest and worst administered mining jurisdictions.

There are two main reasons why the majority of the world's cobalt supply comes from the DRC: mineral endowment and favourable metallurgy.

Southern DRC and North-western Zambia (including the Zambian Copperbelt) cover the geological domain known as the Central African Copperbelt. Deposits in both countries commonly contain cobalt.

Of the 190 countries assessed for 'ease of doing business' by the World Bank in 2017, Zambia ranked 85. DRC ranked near the bottom at 182. Zambia is a far safer and lower-risk jurisdiction that benefits from politically stability, robust mining law and functioning courts.

Other counties with significant cobalt endowment include Australia (nickel-cobalt laterites) and Canada (polymetallic copper-nickel-cobalt). The main reason cobalt production lags in these countries is metallurgy. The processing of cobalt in Australia and Canada is either metallurgically complex or prohibitively expensive (or both).

Zambia represents a blend of lower political risk, mineral endowment and favourable metallurgy.

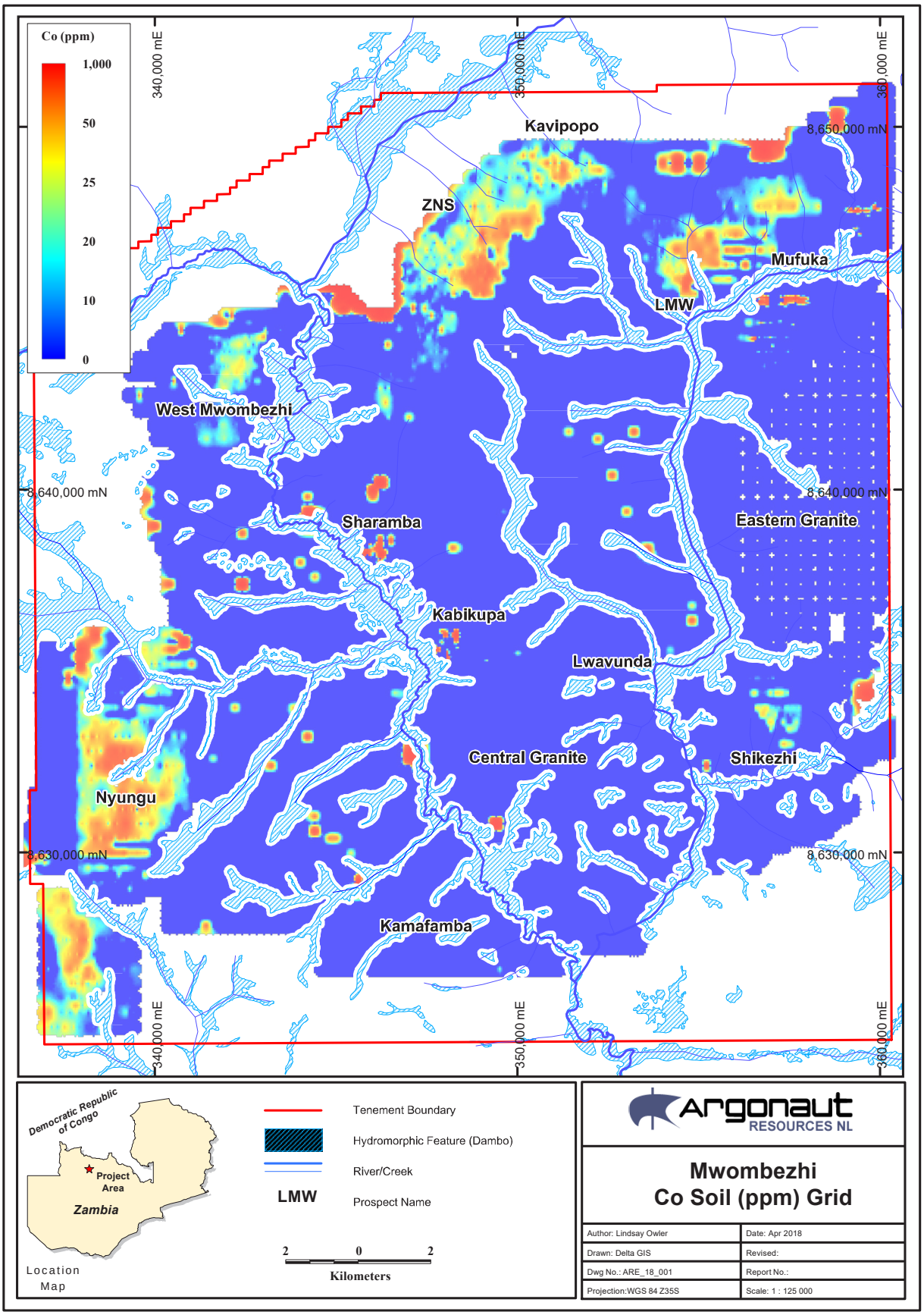
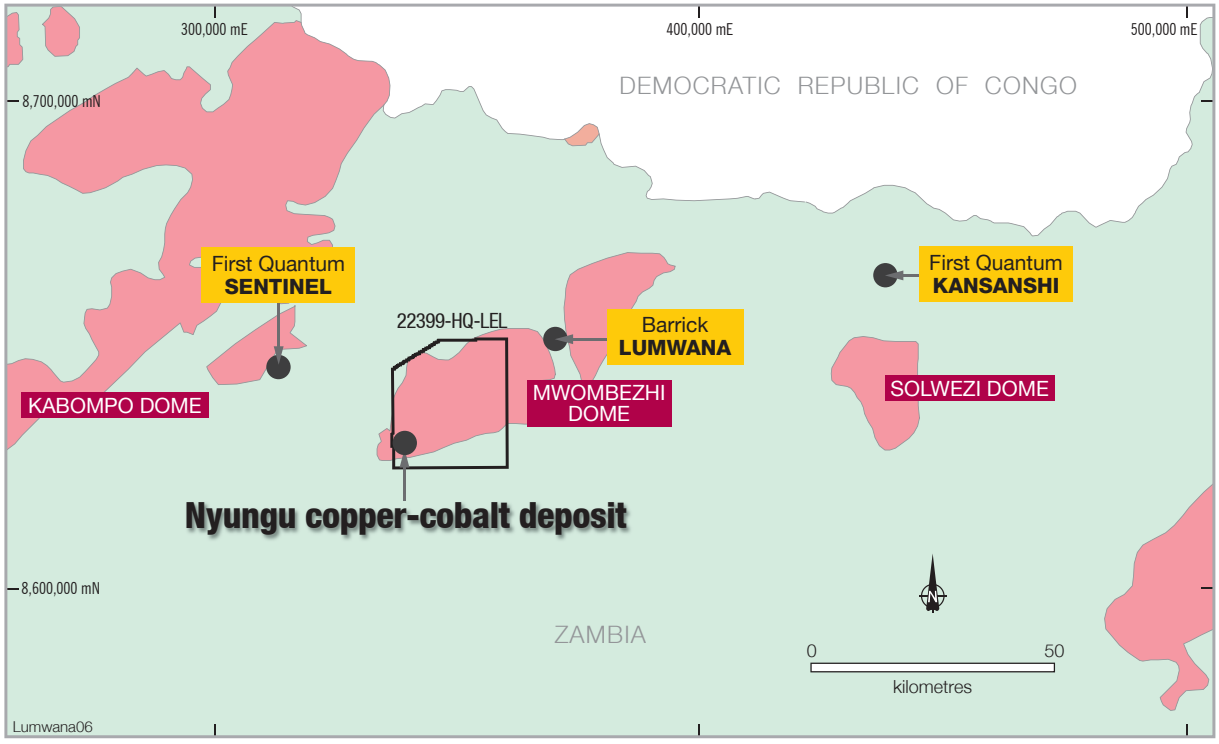


Figure 6 *Cobalt soil anomalism is concentrated around the margin of the Mwombezhi Dome, near the boundary between basement rocks and overlying sedimentary rocks.*



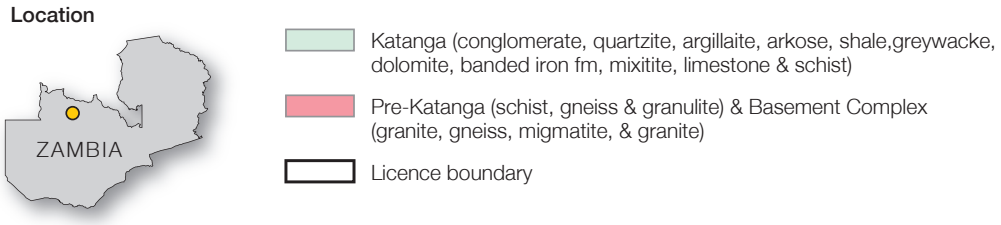


Figure 7 *Location of the Nyungu copper-cobalt deposit, North-western Province, Zambia.*

About Argonaut

Argonaut is an Australia Securities Exchange listed exploration and development company. Argonaut operates the Torrens Iron Oxide Copper-Gold joint venture with Aeris Resources Ltd in South Australia and the Lumwana West copper-cobalt project in north-western Zambia.

Lindsay Owler
Director and CEO

Argonaut Resources NL

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 2017 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.