

ASX: ARE

#### CAPITAL STRUCTURE:

Issued shares: 2,913 million

Listed options: None

Unlisted options: 65 million

Cash on hand: \$2,749,000

#### DIRECTORS:

Patrick Elliott,  
Non-Exec Chairman

Lindsay Owler,  
Director/CEO

Andrew Bursill,  
Non-Exec Director

Malcolm Richmond,  
Non-Exec Director

#### COPPER PROJECTS:

##### **Murdie, South Australia**

Copper, gold (large IOCG)

Phase: Exploration

Interest: Argonaut 100%

##### **Lumwana West, Zambia**

Copper, cobalt (shear-hosted)

Phase: Economic Study

Interest: Argonaut 90%

Agreement Phase: Post-Earn-In,  
Exploration

Operator: Argonaut

##### **Torrens, South Australia**

Copper, gold (large IOCG)

Interest: Aeris Resources 70%,  
Argonaut 30%

Agreement Phase: Exploration

Operator: Aeris

#### GOLD & NICKEL PROJECT:

##### **Higginsville, Western Australia**

Oxide and primary gold, nickel

Phase: Exploration

Interest: Argonaut 51%,  
earning up to 80%

Agreement Phase: Earn-in,  
Phase Two

Operator: Argonaut

# Quarterly report

FOR THE PERIOD ENDING 31 MARCH 2021

Argonaut Resources NL (*Argonaut or the Company*) (ASX: ARE) is pleased to present the following report for the period to 31 March 2021 (*the Quarter*).

## Highlights

### Murdie, South Australia – Copper –100%

#### *Drilling Underway*

- Drilling commenced at the Murdie project on 22 March 2021.
- Drilling is targeting Iron-Oxide Copper-Gold (IOCG) mineralisation defined by large gravity anomalies within the Olympic Copper-Gold Province of South Australia.
- At the time of writing, the initial drill hole, WLTD001, had reached 815m. This is the first deep diamond drill hole in an initial 4–5 hole program.
- WLTD001 is targeting a residual gravity anomaly called Smith Dam 1 (Figure 3).
- Geophysical modelling indicates the residual gravity anomaly will be intercepted at approximately 890m.
- A protective roadway has been laid-out to access the next drill target, Smith Dam 2 (Figure 3).

#### *Drilling Authorisation*

- On 4 January 2021, the Company announced that the South Australian Government approved an application by Argonaut's 100% held subsidiary, Kelaray Pty Ltd, under the Aboriginal Heritage Act 1988 (AHA). This authorisation was the final approval required for the Murdie drilling program.

#### *Gravity Survey*

- Since October 2020, 7,900 gravity stations have been surveyed in the Murdie area including over several confirmed drilling targets. Argonaut plans to survey approximately 1,000 additional gravity stations at Murdie in the coming weeks.

#### *Judicial Review*

- On 17 March 2021, the Barngarla Determination Aboriginal Corporation RNTBC filed an application in the South Australian Supreme Court for a review of the authorisation announced by Argonaut on 4 January 2021.
- Argonaut expects the application to be heard during May 2021.

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## Lumwana West – Copper/Cobalt – 90%

- A scoping economic study of the Nyungu copper-cobalt deposit recommenced during September 2020. The Company is generating metallurgical, Resource and mining data to assess various mineral processing scenarios.
- A saleable copper concentrate grading 25.6% copper at a recovery of 87% was produced in the laboratory prior to the Quarter.
- A program of oxidation testing, including roast/leach testwork and Albion Process™ Leach process testing, was completed during the Quarter. Preliminary results indicate that key findings of the testwork identify that extraction results are superior under the acid Albion Process™ Leach conditions compared with the roasting work conducted.

## Uranium Assets – 100%

- Argonaut has assembled a package of prospective, 100% held uranium projects in South Australia and the Northern Territory.
- The Frome project is nearby to the Honeymoon, Four Mile and Beverley uranium mines and is immediately adjacent to the Goulds Dam uranium deposit.
- During the Quarter, Argonaut acquired the Mount Douglas exploration licence that contains hard rock uranium targets near the base of the Kombolgie sandstone in the Northern Territory.

## Outlook

### *Copper*

- The copper price rose to US\$4.20/lb during the Quarter and has continued to strengthen to US\$4.45/lb – approximately equal to the all-time-high – since the end of the period.
- The copper price is on a firm upwards trajectory due to tightened supply and broadly increasing demand.
- Argonaut anticipates that the copper price will continue to rise and that the copper market will remain strong for some time.
- This booming copper market underpins Argonaut's Murdie project copper drilling as well as the scoping feasibility study of a copper-cobalt mine at Argonaut's Nyungu deposit at Lumwana West in Zambia.

# Murdie, South Australia

(Copper – Argonaut 100%)

The Murdie project is located in South Australia near the eastern margin of the Gawler Craton. The project area covers 1,015 square kilometres of highly prospective Olympic Domain geology and includes more than 50 discrete gravity anomalies that are located immediately south and east of the Torrens project and east of the Carrapateena mine (Figure 1). These anomalies represent locations with significant volumes of high-density rock that could contain economic IOCG deposits.

Argonaut holds a 100% interest in the Murdie project.

## Highlights

- Drilling is targeting Iron-Oxide Copper-Gold (IOCG) mineralisation defined by large gravity anomalies within the Olympic Copper-Gold Province of South Australia.
- At the time of writing, the initial drill hole, WLTD001, had reached 815m. This is the first deep diamond drill hole in an initial 4-5 hole program.
- WLTD001 is targeting a residual gravity anomaly called Smith Dam 1 (Figure 3).
- A drilling contract was executed and a track-mounted Sandvik DE740 drilling rig, capable of drilling cored holes to 1,800m, mobilised to site in March 2021.
- Detailed ground gravity surveys continued during the Quarter over prospective areas to improve the accuracy of drill-targeting.



*The drilling rig near the shore of Lake Torrens at drill hole WLTD001, Murdie project.*

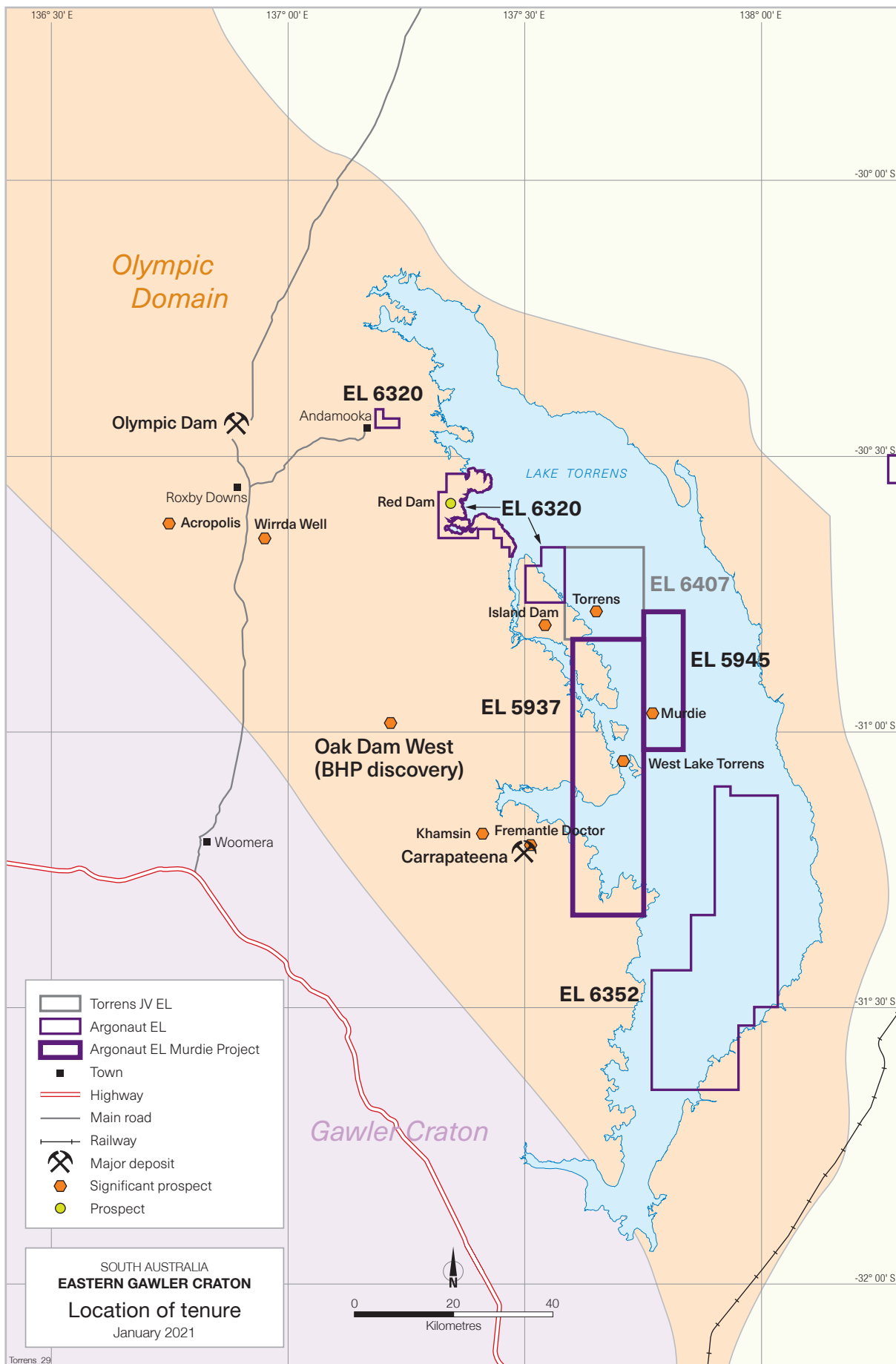


Figure 1 Lake Torrens exploration licences.

## Gravity Anomalies

A volume of high-density rock causes a measurably higher gravitational pull at surface and this manifests as a gravity anomaly. Therefore, mineral explorers can use gravity surveys as a means to define gravity anomalies and potentially discover dense orebodies. IOCG orebodies contain high concentrations of iron and copper minerals making them particularly dense.

The Murdie exploration licences covers two largescale, regional gravity anomalies – West Lake Torrens and Murdie (Figure 1). These anomalies represent locations with significant volumes of high-density rock that could contain economic IOCG deposits. Efforts are being focused on the West Lake Torrens anomaly.

## West Lake Torrens Bouguer Anomaly

The West Lake Torrens anomaly is a regional gravity anomaly (Figure 2). This type of anomaly is typically displayed as a “bouguer” gravity anomaly. The peak of the West Lake Torrens bouguer anomaly is 7 milligals above background levels.

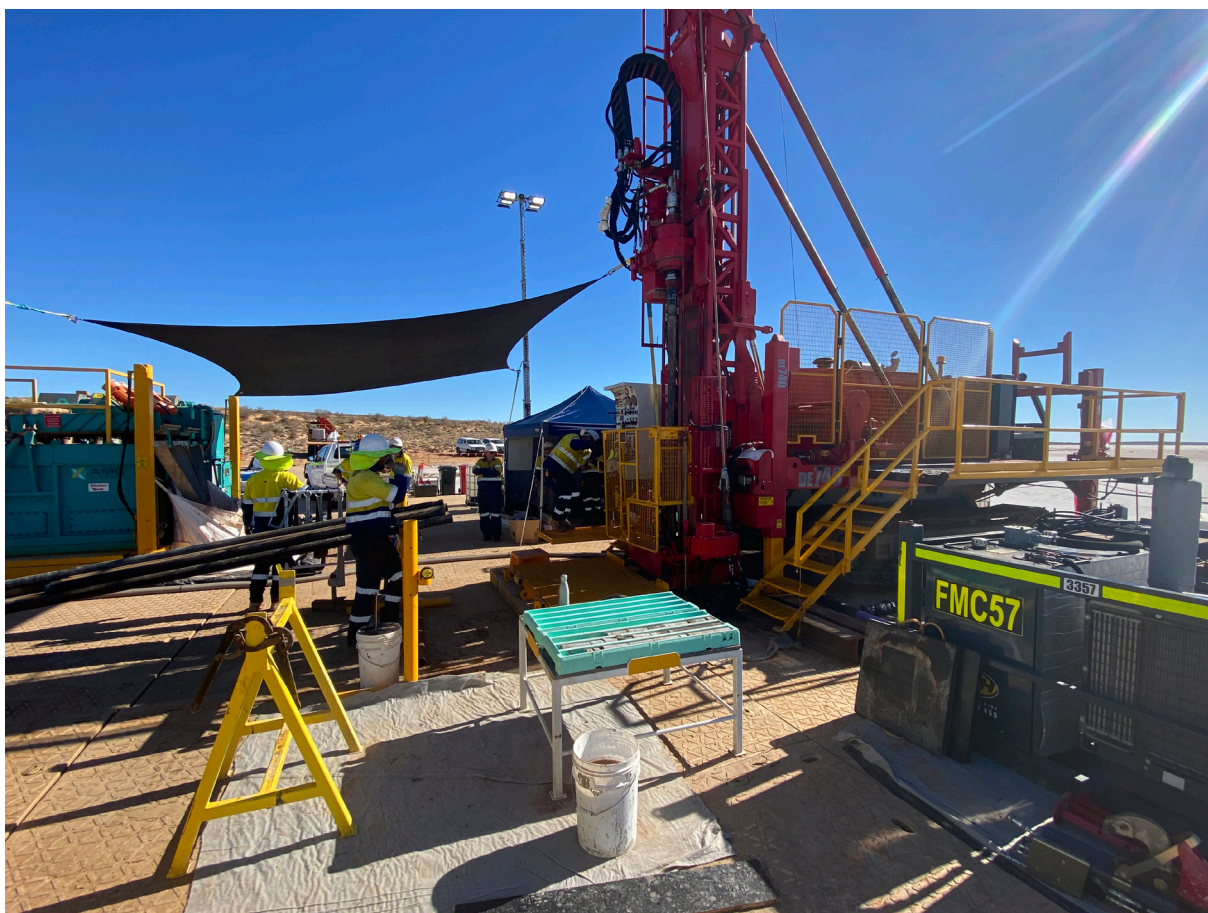
## Residual Gravity Targets

Initial 2021 drilling by Argonaut at the Murdie project will target “residual” gravity anomalies within the wider West Lake Torrens anomaly (Figures 2 and 3). The residual gravity targets shown in Figure 3 are 0.85 to 1.15 milligals above the regional gravity anomaly.

## Drilling Targets

Argonaut has identified seven excellent drilling targets at the West Lake Torrens anomaly (Figure 3). Drilling targets located near the shoreline of Lake Torrens are shown on Figure 3 as Smith Dam 1 to 4. Offshore targets are labelled Crystal Dam 1 to 3.

Argonaut plans to drill test Smith Dam 1 and Smith Dam 2 first. Other targets will be prioritised on the basis of results.



*Drilling at WLTD001, Murdie project.*

## Highly Compelling Targets

Many of the targets at the Murdie project have two important and sought-after qualities:

- they are within or at the margin of the same **Donington Suite granite** body that hosts both the Oak Dam and Carrapateena IOCG deposits; and
- the Oak Dam deposit and Argonaut's targets are defined by '**gravity only**' geophysical anomalies.

Gravity-only anomalies do not have a significant associated magnetic anomaly and can be indicative of IOCG deposits that have been entirely altered from magnetite-dominant, low-grade systems to high-grade, hematite-dominant IOCG systems.

Large, gravity-only anomalies within Donington Suite granite are the most compelling copper exploration targets in the country.

## Ground Gravity Survey

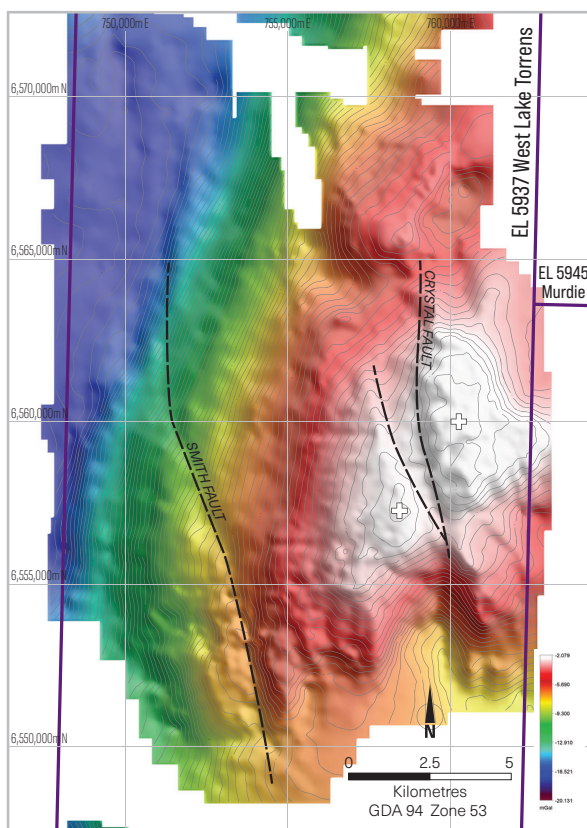
Geophysical crews have been working at the Murdie project since 20 October 2020. The crews are conducting a detailed ground gravity survey over selected areas to improve the accuracy of drill-target modelling.

To date 7,900 gravity stations have been surveyed including over the area of several confirmed drilling targets (Figures 2 and 3). A further 1,000 gravity stations will be surveyed in the coming weeks.

Argonaut is pleased with both the results of the survey and the resolution of the data.

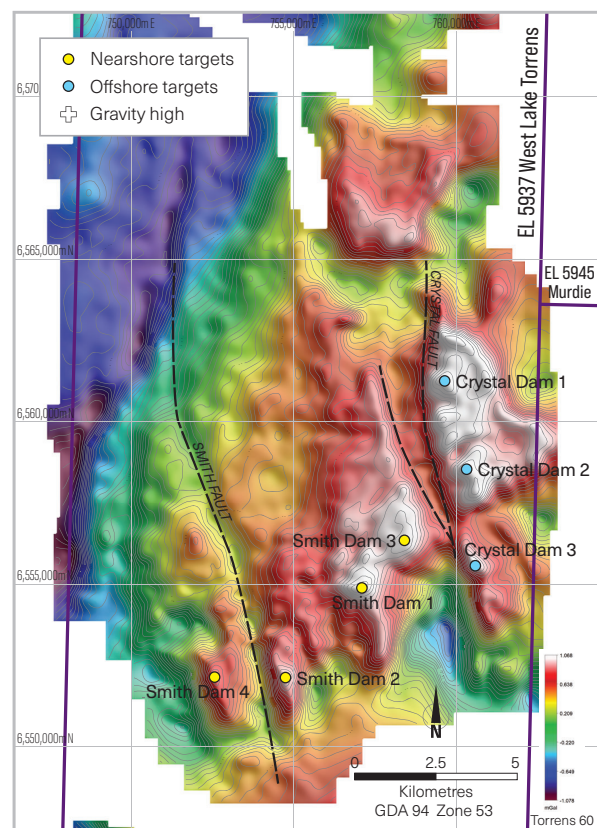
## Accelerated Discovery Initiative

Funding in the amount of \$320,000 was awarded to Argonaut through the ADI program, which forms part of the South Australian Government's Growth State Agenda. The ADI aims to accelerate mineral discovery through innovative exploration and research projects in regional and frontier terrains throughout South Australia.



WEST LAKE TORRENS  
Bouguer gravity anomaly

**Figure 2** West Lake Torrens bouguer (regional) gravity anomaly.



WEST LAKE TORRENS  
Residual gravity anomalies and drilling targets

**Figure 3** West Lake Torrens residual gravity anomalies and drilling targets.

## Authorisations

### ***Authority under the Aboriginal Heritage Act***

On 24 February 2020, Kelayar lodged an application under section 23 of the Aboriginal Heritage Act 1988 for areas of exploration licences 5937 and 5945.

On 29 December 2020, the South Australian Government granted an authorisation. The authorisation allows for exploration-phase drilling plus potential resource and reserve definition drilling. The approval covers the parts of exploration licences 5937 and 5945 that overlap with Lake Torrens or are onshore and within 500m of the Lake Torrens shoreline.

### ***Judicial Review Application***

During the Quarter, the Barngarla Determination Aboriginal Corporation RNTBC filed an application in the South Australian Supreme Court for a review of the section 23 authorisation.

The Company notes that there are no registered Barngarla heritage sites at Lake Torrens.

Exploration works being undertaken at the Murdie project have been duly authorised. The Company is confident that the State's authorisation process was robust.

Supreme Court directions hearings were held on 25 March and 28 April 2021. The application is currently scheduled to be heard during May 2021.

### ***Operational Approval***

The 'Exploration Program for Environment Protection and Rehabilitation' for ongoing exploration activities including ground gravity surveys and diamond drilling at exploration licences 5937 and 5945 was approved under the South Australian Mining Act in January 2020.

The approval allows for up to 200 deep diamond drill holes into a string of large and prospective IOCG anomalies from nearshore and offshore locations on the salt crust of Lake Torrens.

### ***Native Title Access***

In 2018, the South Australian ERD Court granted native title authority to enter and undertake mining operations (exploration) within the area of EL5937 and EL5945.



*Drilling at the Murdie project, March 2021.*

# Lumwana West, Zambia

(Copper-Cobalt – Argonaut 90%)

## Highlights

- A scoping economic study of the Nyungu copper-cobalt deposit recommenced during September 2020. The Company is generating metallurgical, Resource and mining data to support various mineral processing scenarios.
- A saleable copper concentrate grading 25.6% copper at a recovery 87% was produced in the laboratory prior to the Quarter.
- A program of oxidation testing, including roast/leach testwork and Albion process leach process testing, was completed during the Quarter. Preliminary results indicate that metal extraction is superior via the Albion process compared with conventional roasting and acid leaching.
- Subsequent to the Quarter, a program of leach testing on oxide and transitional material commenced. This work will provide guidance with regards to heap leaching and potentially dump leaching of lower-grade material.

## Lumwana West Project

The Lumwana West Project is in the Central African Copperbelt, North-Western Province, Zambia. The area is prospective for large tonnage, low to medium grade copper/cobalt deposits. There are several major mines nearby to Lumwana West in similar geological settings (Figure 4).

Argonaut, via its 90% held subsidiary, Mwombezi Resources Ltd, has been successful in intercepting broad copper and cobalt intercepts at the Nyungu deposit. Argonaut is working on a series of scoping studies to better understand the economics of a potential mine.

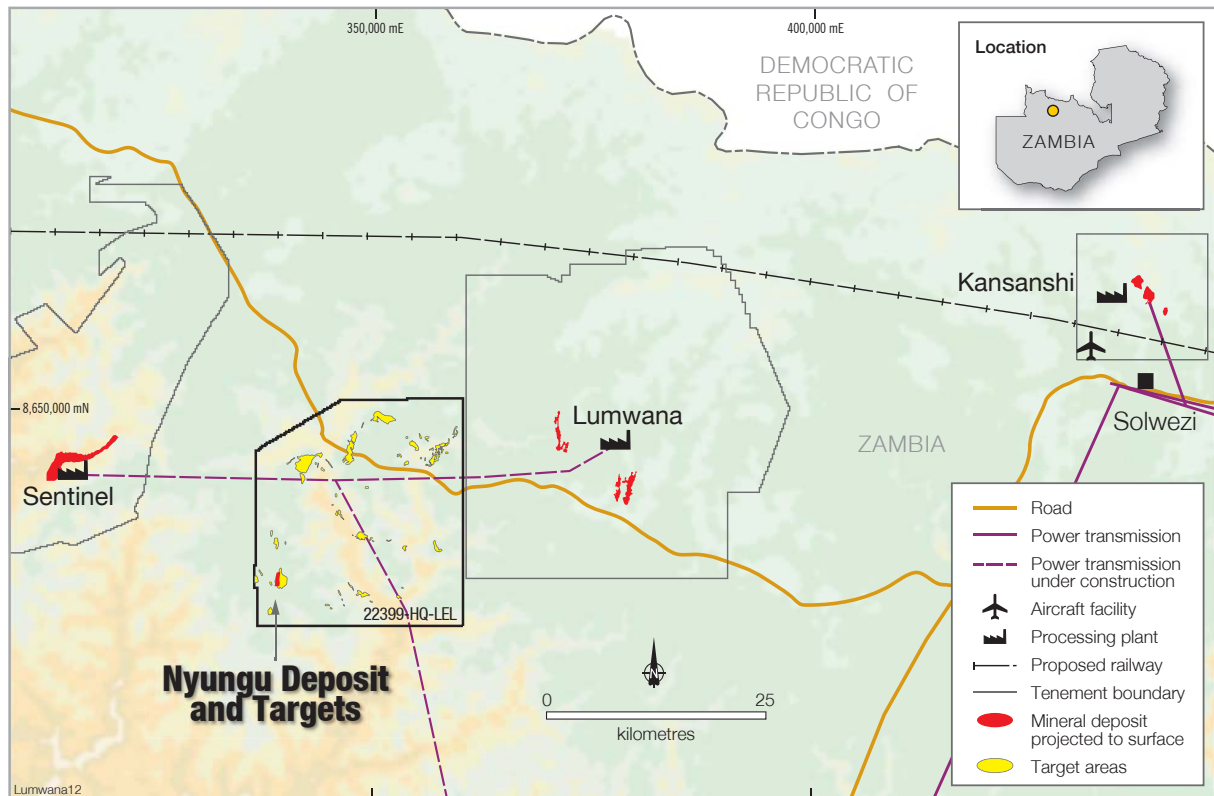
Table 1 summarises elements of a potential mining development at Lumwana West.

**Table 1. Feasibility factors for a mine development at Lumwana West**

<b>Jurisdiction</b>	Zambia has a long and ongoing history of large-scale copper mining. Social and Governmental pressures favour the development of new mines.
<b>Infrastructure</b>	Lumwana West is located at major electricity and transport corridors (Figure 4).
<b>Resource</b>	The Nyungu copper-cobalt deposit has predictable geometry and scope for significant growth with continued drilling (Table 2).
<b>Mining</b>	Very low stripping ratio of 1.5 tonnes of waste rock for every 1 tonne of ore. Resource drilling to greater depths is warranted.
<b>Processing</b>	Fast, high copper recovery from flotation of both transitional and primary copper ore minerals.
<b>Economics</b>	Scoping economic study has commenced.

## Resource Estimation

Argonaut has engaged a consultancy to carry out a Resource estimation to JORC standards for the Nyungu copper-cobalt deposit. Argonaut will report on the outcome of this work once a final report has been completed. A Resource estimation would replace the Exploration Target estimation shown below.



**Figure 4** Lumwana West licence showing the Nyungu copper-cobalt deposit plus nearby mines and infrastructure.

## 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 2.

**Table 2. 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.

## 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 with highly encouraging results.

Modelling shows excellent deposit geometry via a very low stripping ratio.

- Stripping ratio of 1.5 to 1 for the optimum pit at the February 2018 copper price; and
- Stripping ratio of 2.3 to 1 to a depth of >300m at 150% of the February 2018 copper price, indicating the deposit has a low sensitivity to stripping ratio.

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

Further studies including mining scheduling are being undertaken at present.

## Metallurgical Test Work

Argonaut exported metallurgical test samples to Australia for a program of testwork. Mineralogy, comminution and flotation testwork is substantially completed for samples taken from four potential ore types within the Nyungu copper-cobalt deposit.

### **Flotation Testwork**

A saleable copper concentrate grading 25.6% copper at a recovery 87% was produced in the laboratory prior to the Quarter. This copper concentrate is of a specification that can be sold to nearby smelters.

Flotation tests demonstrate that a flotation circuit can achieve high recovery from both transitional zone copper minerals (an average of 78% and up to 88% recovery) and primary zone copper sulphides (an average of 88% and up to 96% recovery). It is unusual and encouraging to achieve such high copper recovery via the flotation of transitional (partially oxidised) mineralisation.

### **Oxidation Testwork**

A program of oxidation testing, including roast/leach testwork and Albion Process™ Leach process testing, was completed during the Quarter. Preliminary results indicate that key findings of the testwork identify that extraction results are superior under the acid Albion Process™ Leach conditions compared with the roasting work conducted.

### **Leach Testwork**

Subsequent to the Quarter, a program of leach testing on oxide and transitional material commenced. This work will provide guidance with regards to heap leaching of ore-grade oxide and transitional ore and potentially dump leaching of lower-grade material.

Various solvent extraction and electro-winning (SX/EW) tests will follow. Results from metallurgical studies and the mining study will feed into the scoping economic study.

## Torrens, South Australia

(Copper – Argonaut 30%)

### Exploration

The Torrens joint venture partners previously decided to recommence exploration activities at the Torrens project.

During the Quarter, results of a passive seismic survey conducted across the Torrens gravity anomaly were received. These results assist in refining geological and geophysical models used for future drill targeting.

### **General Comments**

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

Exploration in the Olympic Domain has historically been hindered by two factors: the thickness of cover formations, and difficulties securing access. These factors, although frustrating, have preserved exploration targets that would have otherwise been tested.

Statistically, the drill testing of gravity targets in the Olympic Domain has delivered a higher than average discovery rate. It makes commercial sense to invest copper exploration budgets into drilling well defined gravity targets in the Eastern Gawler Craton.

Major, diversified miners and mid-cap copper miners are specifically seeking to increase copper production due to forecast copper supply shortages. There was an underinvestment in copper exploration between 2012 and 2017, consequentially there are relatively few copper deposits available to acquire. Copper discoveries are necessary and copper deposits are in-demand.

The combination of geological prospectivity, access rights and a global appetite for new copper deposits make the Torrens Joint Venture project a compelling investment opportunity.

## Torrens Project

The Torrens Joint Venture project is located within the globally recognised Olympic Domain, at the eastern margin of South Australia's Gawler Craton, within 40 kilometres of BHP Group's Oak Dam copper discovery, 50 kilometres of OZ Minerals' Carrapateena copper-gold deposit and 75 kilometres from BHP's Olympic Dam mine. BHP's recent discovery at Oak Dam has confirmed the validity of the Torrens target and the copper endowment of the Eastern Gawler Craton.

## Torrens Anomaly

The Torrens anomaly is a coincident magnetic and gravity anomaly with a footprint larger than that of Olympic Dam. The anomaly is located at the Torrens hinge zone, a continent-scale zone of crustal weakness that appears to have been a conduit for mineralising fluids from the Earth's mantle.

Drilling at Torrens to date has confirmed the existence of a major IOCG mineralising system beneath several hundred metres of sedimentary cover. Further drilling is required to intercept the modelled copper-gold mineralisation. In the event of a discovery, the Torrens anomaly has the scale to host a world-class copper-gold deposit.

## Red Dam, South Australia

(Copper – Argonaut 100%)

Argonaut holds exploration licence EL6320 located adjacent to the Torrens Project (Figure 1). The 198 square kilometre licence area is in three parts and encompasses the Red Dam IOCG target, previously identified by WMC.

The licence areas were relinquished by BHP prior to the announcement of the Oak Dam discovery.

Argonaut has assessed the relevant, historical drill core and conducted a ground gravity survey in 2020 to improve resolution for geophysical modelling and target generation.

## Lake Torrens South, South Australia

(Copper – Argonaut 100%)

Argonaut holds exploration licence EL6352 located southeast of the Torrens and Murdie projects (Figure 1). The 993 square kilometre licence area covers a portion of southern Lake Torrens.

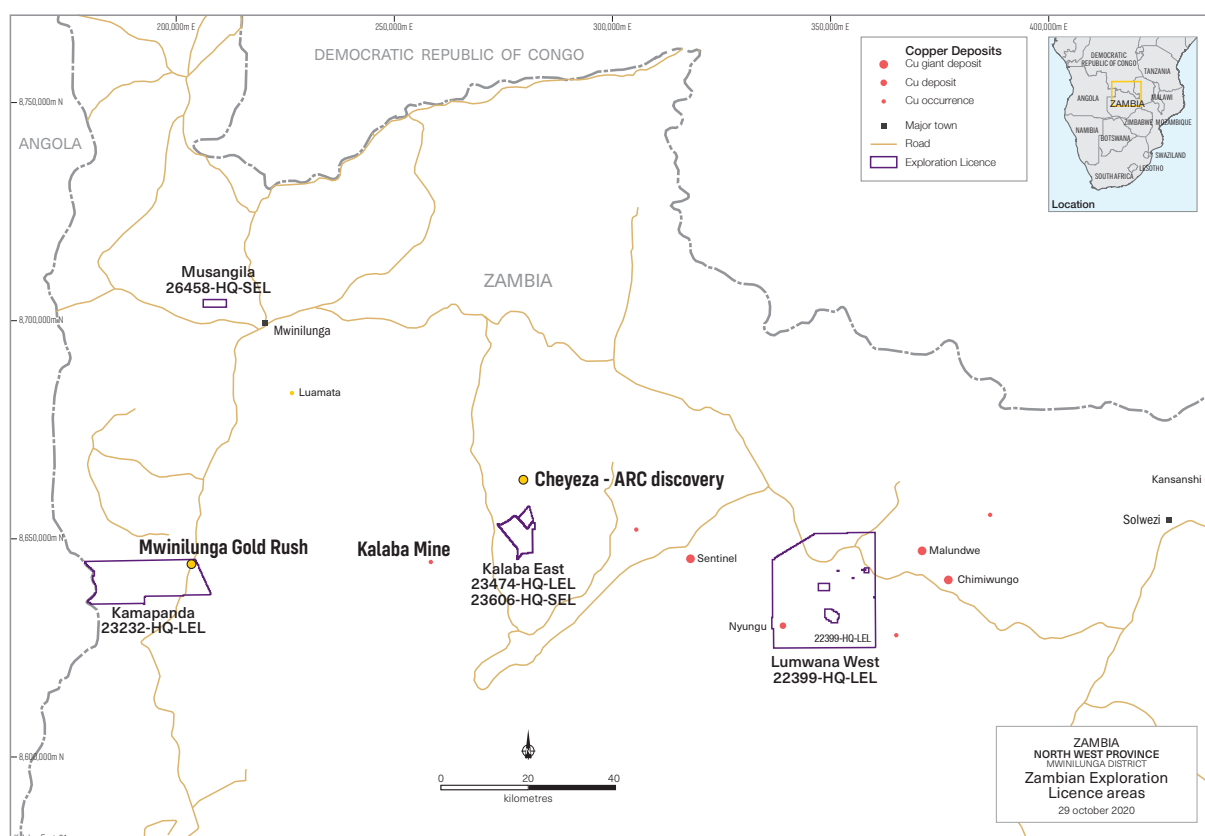
Argonaut now has a commanding 2,501 square kilometre land position in the Eastern Gawler Craton.

## Kamapanda, Zambia

(Copper-Cobalt – Argonaut 90%)

The Kamapanda project is located in the Central African Copperbelt, North-Western Province, Zambia (Figure 5). The area is prospective for large tonnage, low to medium grade copper-cobalt deposits and alluvial gold.

A program of regional stream sediment sampling is planned to outline both gold and copper potential.



**Figure 5** Exploration licences located within the Northwestern Province, Zambia.

## Kalaba East, Zambia

(Copper-Cobalt – Argonaut 90%)

The Kalaba East project lies adjacent to ARC Minerals' recent Cheyeza East prospect and Muswema North prospect and west of the 300,000tpa Sentinel copper mine, (Figure 5).

At Cheyeza East ARC Minerals intercepted 18m at 2.35% copper and 39m at 1.47% copper.

Argonaut plans to conduct a regional geochemical sampling program at Kalaba East.

## Musangila, Zambia

(Copper-Cobalt- Argonaut 90%)

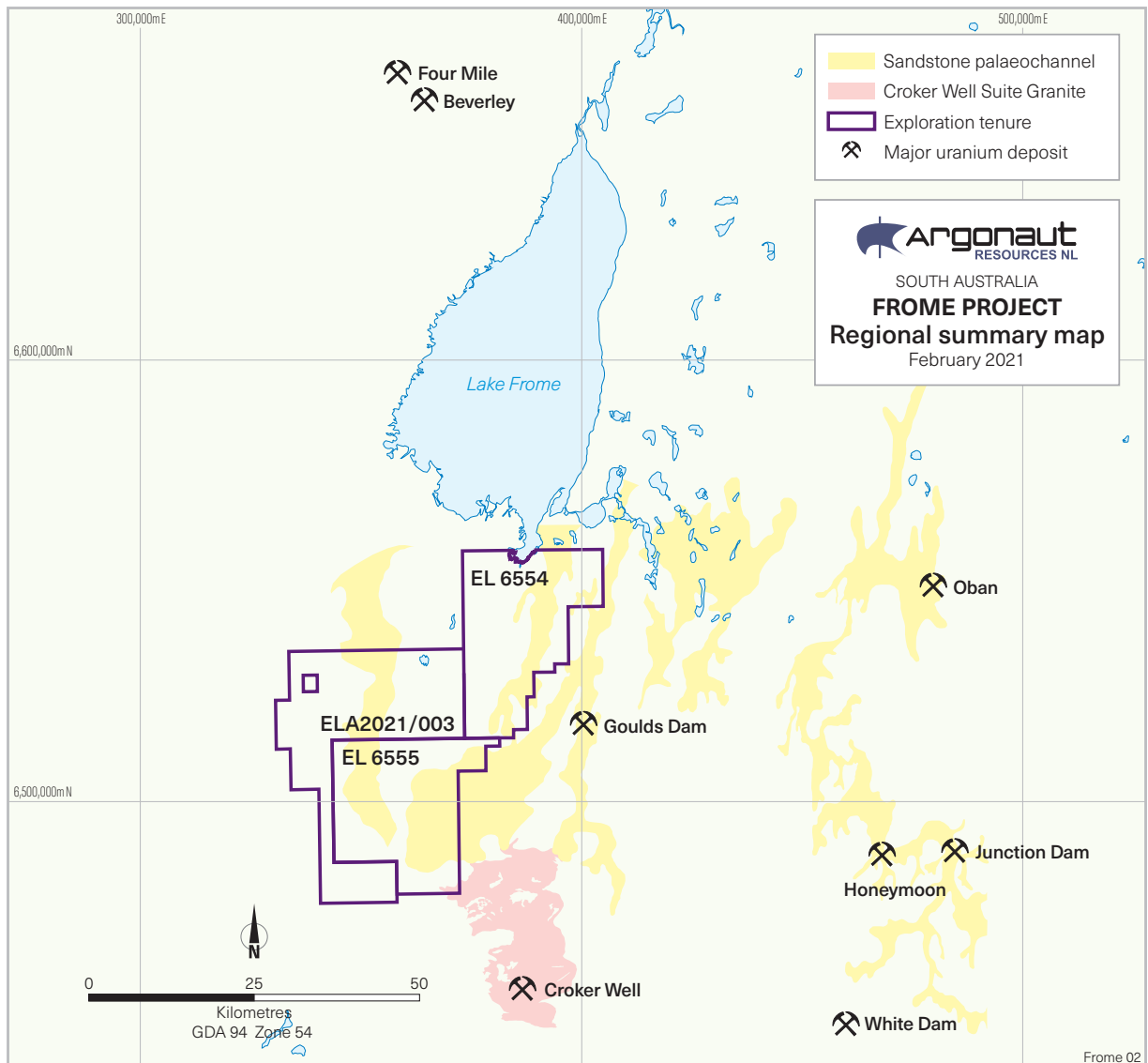
Argonaut via its 90% held subsidiary, Sunrise Exploration and Mining Limited owns the Musangila project (Figure 5) and is currently awaiting operational approvals and consent from Zambian authorities to conduct reconnaissance exploration activities prior to undertaking a confirmatory geochemical sampling program and RC drilling.

## Uranium Assets, South Australia and Northern Territory

(Uranium – Argonaut 100%)

Argonaut has assembled a package of prospective, 100% held uranium projects in South Australia and the Northern Territory.

In South Australia, the Frome project involves three highly prospective exploration licences in the Frome Embayment area of South Australia which is arguably the most prospective region in Australia for sandstone-hosted uranium deposits. The area hosts the Beverley deposit and the Four Mile in the northwest and the Honeymoon, Goulds Dam and Oban deposits in the southeast (Figure 6).



**Figure 6** Frome project tenement locations and major uranium deposits.

The recently acquired landholding of 2,894 square kilometres covers:

- a network of sandstone palaeochannels containing groundwater that drains from uranium-bearing granite source rocks;
- existing drilling with downhole gamma logs that defines 12 line-kilometres of redox fronts within thick sandstone units; and
- two walk-up, high priority drilling targets plus at least size early-stage drilling targets.

## Tenure

Argonaut holds a 100% interest in two large exploration licences - both greater than 950 square kilometres and a third exploration licence via an option, sale and milestone agreement. This agreement provides for the acquisition by Argonaut of a 100% interest of a third similarly large exploration licence, currently in the application stage. Frome project exploration licences are described in detail below.

Frome project exploration licences:

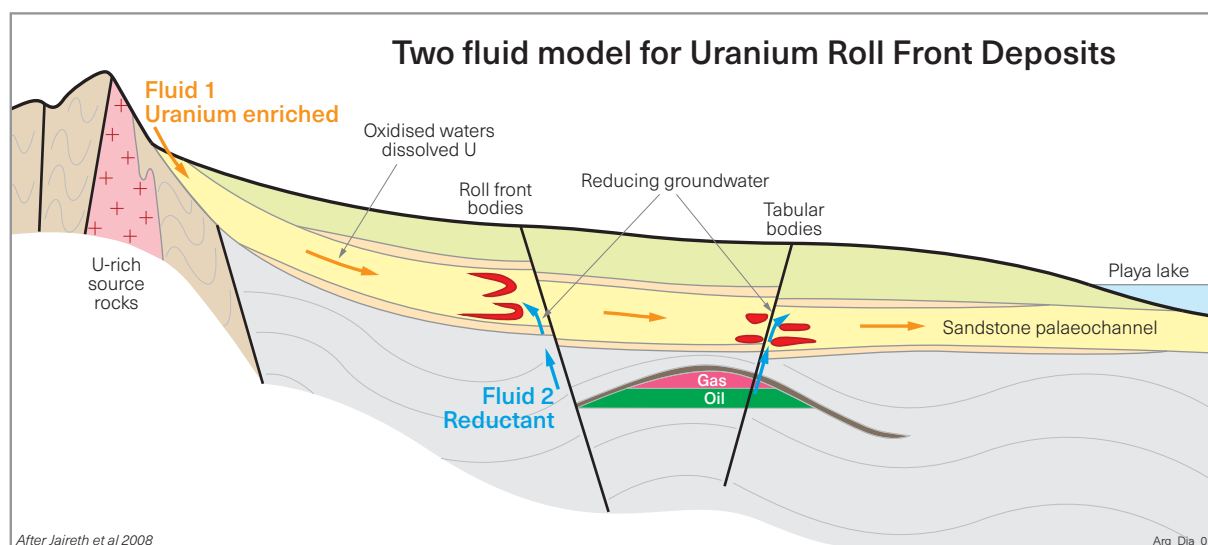
- EL6554, Frome Downs – 960km<sup>2</sup> (100%);
- EL6555, Curnamona – 947km<sup>2</sup> (100%); and
- ELA 2021/003, Erudina – 987km<sup>2</sup> (option to acquire 100%).

## Prospectivity

These licences cover sandstone-bearing palaeochannels that contain groundwater that drains from uranium-bearing granite. Previous drilling of these palaeochannels confirms the presence of excellent sandstone aquifers at or near the base of the channels. These sandstone aquifers are 4m to 20m thick (typically 10-12m) and contain the necessary permeable coarse sands.

These basal sandstones have been shown to contain both oxidised, uranium-bearing zones and reduced zones. Work by Argonaut has confirmed 12 kilometres of redox front within palaeochannels along which high priority exploration is necessary.

Argonaut is applying the “two fluids” model for uranium roll front deposits (Figure 7) which involves oxidised, uranium bearing groundwater (Fluid 1) flowing along the permeable sandstone units until it encounters reducing groundwaters which have leaked upwards through faults from deeper, hydrocarbon-bearing aquifers (Fluid 2). The interface of these fluids creates a redox front that can trap and concentrate uranium.



**Figure 7** Diagram showing two fluid model. Uranium is carried in oxidised groundwaters and reduced by hydrocarbons and/or  $H_2S$  released from the underlying hydrocarbons. Both roll-front and tabular ore bodies can result from the process. After Jaireth et al 2008.

## Geology

As stated above, uranium accumulation as a consequence of the two fluids model requires three principal elements: uranium rich source rocks, a permeable sandstone aquifer to carry the oxidised, uranium bearing groundwater, and the introduction of a reductant up faults from a lower, hydrocarbon-bearing aquifer.

At the Frome project area, we see the following geological units:

1. The Eyre Formation (Honeymoon and Goulds Dam deposits) and Namba Formation (Beverley deposit) palaeochannels. These units are contained in the Callabonna Sub-basin of the Lake Eyre Basin.
2. The underlying Arrowie Basin, which includes the hydrocarbon-bearing Wilkawillina Limestone unit.
3. The Crocker Well Suite granite (Figure 8) which is an excellent uranium source rock and displays a strong radiometric anomaly where it outcrops.
4. Faults that cut both the Arrowie basin sediments and the overlying Eyre or Namba formations.

## Exploration

Argonaut has compiled and interpreted all existing data. The data is encouraging in that it points towards numerous opportunities for the discovery of sandstone-hosted uranium. Work will proceed in several phases:

1. Palaeochannel and fault interpretation via existing aeromagnetic and airborne EM data.
2. Acquisition and interpretation of new, detailed airborne EM data.
3. Drilling of high priority targets (Figure 8)
4. Drilling of regional, early-stage targets (Figure 8).

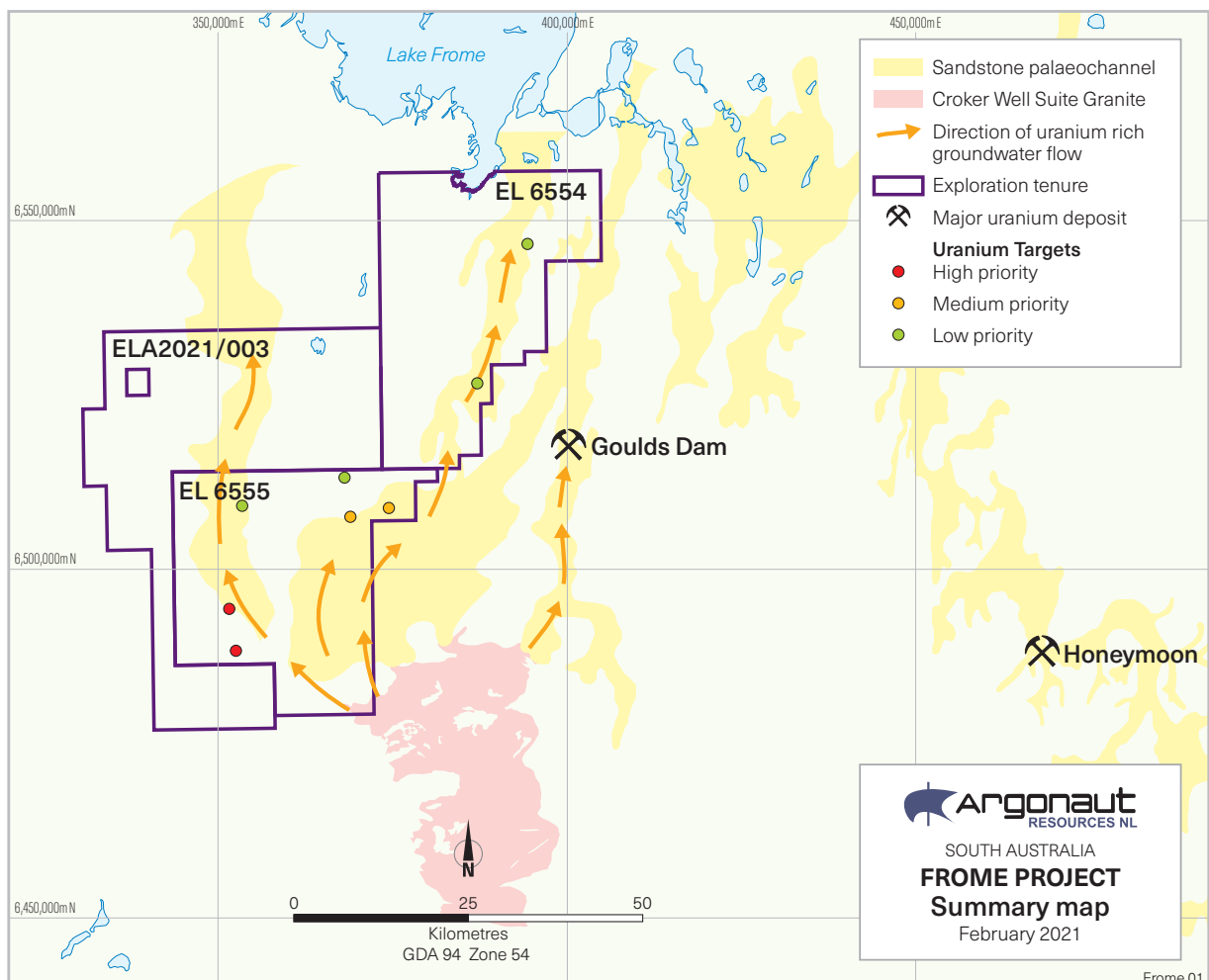
Argonaut is currently commencing the permitting process required for drilling.

Argonaut acquired the Mount Douglas exploration licence in the Northern Territory during the Quarter. This licence contains hard rock uranium targets near the base of the Kombolgie sandstone.

The uranium projects secured by Argonaut are (also see Summary of Mining Tenements):

- Frome Embayment, SA – Beverley and Honeymoon-style sandstone-hosted, roll front targets:
  - Frome Downs – 960km<sup>2</sup>; and
  - Curnamona – 947km<sup>2</sup>.
- Cummins, SA – sandstone-hosted, roll front targets:
  - Cummins – 952km<sup>2</sup>.
- Alligator Rivers Uranium Field, NT – Ranger-style unconformity related targets:
  - Ranger North-East – 64km<sup>2</sup>.
- South Alligator Valley Mineral Field – unconformity related targets near Coronation Hill deposit:
  - T-Bone – 230km<sup>2</sup>.
- Mount Douglas, NT – Argonaut has acquired the Mount Douglas exploration licence that contains hard rock uranium targets near the base of the Kombolgie sandstone.
  - Mt Douglas – 467km<sup>2</sup>.

Argonaut is actively considering potential corporate structures to house and fund these new assets in a way that compliments the Company's existing focus on copper and gold.



**Figure 8** Frome Project licences with Eyre Formation sandstone palaeochannels – which have been shown to host uranium deposits – and the Crocker Well Suite granite which is a uranium-bearing source rock from which oxidised groundwater can flow through the palaeochannels until it encounters a reducing environment where it can form concentrated deposits.

## Higginsville, Western Australia

(Gold and Nickel – Argonaut 51%, earning up to 80%)

### Agreement Terms

Argonaut and Loded Dog Prospecting Pty Ltd executed the Eastern Goldfields Earn-In Joint Venture and Royalty Agreement on 7 February 2017. Under the agreement, Argonaut has the right to earn an 80% interest in the tenement package according to the following terms:

- Argonaut earned a 51% interest in the tenement package by completing \$500,000 in exploration expenditure within two years of commencement; and
- Argonaut may earn a further 29% interest, for a total of 80%, for completing an additional \$1,500,000 in exploration expenditure within a further three years.
- Reimbursement of tenement acquisition expenses totalling \$250,000 was paid by Argonaut progressively under the agreement.
- An issue of ordinary fully paid Argonaut shares valued at \$50,000 was issued on execution of the definitive earn-in agreement.

The earn-in agreement is currently in the second phase.

### Work Program

Argonaut is conducting a review of both recently acquired and historic exploration data in order to prioritise prospects within the Higginsville licences for future exploration campaigns.

## Kroombit, Queensland

(Zinc-Copper – Argonaut 100%)

Argonaut holds a 100% interest in the Kroombit zinc-copper deposit in Central Queensland via its interest in ML5631 and MDL2002. Mining on ML5631 is subject to a 2% net smelter royalty, payable to Aeris Resources Ltd.

On 11 June 2009 Argonaut announced a maiden resource estimation for the Kroombit deposit. The Indicated and Inferred Resources at Kroombit comprise:

- a Zinc Resource of 5.2 million tonnes at 1.9% zinc and 0.15% copper using a cut-off of 1.0% zinc, for 98,800 tonnes of zinc and 7,800 tonnes of copper; and
- a Copper Resource of 0.9 million tonnes at 1.0% copper at a cut-off of 0.5% copper for 9,000 tonnes of copper.

In addition, Exploration Results are reported comprising a defined Exploration Potential of between:

- 1 million and 1.5 million tonnes at 1.5% to 2.0% zinc, and between
- 0.5 million and 1 million tonnes at 0.7% to 1.3% copper.

No field-based work was undertaken at Kroombit during the Quarter.

## Aroona, South Australia

(Zinc – Argonaut 100%)

EL5336, Aroona, is subject to a joint venture agreement with Perilya Limited.

No field-based work was undertaken at Aroona during the Quarter.

## About Argonaut

Argonaut Resources NL is an Australian Securities Exchange listed exploration and development company focused on the Murdie copper project in South Australia and copper development at the Nyungu copper-cobalt deposit at the Lumwana West project in North Western Zambia.

Authorised for release by:

**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 2020 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 this information in the form and context in which it appears.*

*The information regarding Resource definition and Exploration Potential for the Kroombit deposit is extracted from a report entitled 'Maiden resource estimate announced for Queensland zinc-copper project'. This report was released on 11 June 2009 and is available to view on [www.asx.com.au](http://www.asx.com.au). The company confirms that it is not aware of any new information or data that materially affects the information included in the original market announcement and, in the case of estimates of Mineral Resources or Ore Reserves that all material assumptions and technical parameters underpinning the estimates in the relevant market announcement continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Person's findings are presented have not been materially modified from the original market announcement.*

# Tenement Schedule

**Table 1 - Summary of mining tenements**

South Australian Mineral Exploration Licences						
Tenement	Granted	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
EL 5998 <sup>3</sup>	21/05/2017	20/05/2020	33	Campfire Bore	Coombedown Resources Pty Ltd	10% <sup>1</sup>
EL 6199	04/06/2018	03/06/2023	27	Myrtle Springs	Kelaray Pty Ltd	100%
EL 6407	18/08/2019	17/08/2022	295	Lake Torrens	Kelaray Pty Ltd	30%
EL 5732 <sup>3</sup>	18/10/2015	17/10/2020	104	Sandstone	Coombedown Resources Pty Ltd	10% <sup>1</sup>
EL 5937 <sup>3</sup>	30/03/2017	29/03/2021	794	West Lake Torrens	Kelaray Pty Ltd	100%
EL 5945 <sup>3</sup>	20/04/2017	19/04/2021	221	Murdie	Kelaray Pty Ltd	100%
EL 6320 <sup>3</sup>	28/02/2019	27/02/2021	198	Andamooka Station	Kelaray Pty Ltd	100%
EL 6352	24/06/2019	23/06/2021	993	Lake Torrens Area	Kelaray Pty Ltd	100%
EL 6554	07/12/2020	06/12/2022	960	Frome Downs	Kelaray Pty Ltd	100%
EL 6555	07/12/2020	06/12/2022	947	Curnamona	Kelaray Pty Ltd	100%

Queensland Mining Lease						
Tenement	Granted	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
ML 5631	16/05/1974	31/05/2026	0.32	Kroombit	Kelaray Pty Ltd	100%

Queensland Mineral Development Licence						
Tenement	Granted	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
MDL 2002 <sup>3</sup>	03/08/2016	02/08/2021	0.64	Kroombit	Kelaray Pty Ltd	100%

Zambian Large Scale Exploration Licences						
Tenement	Granted	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
22399-HQ-LEL	29/12/2017	28/12/2021	521	North Western Province	Mwombezhi Resources Ltd	90%
23232-HQ-LEL	10/04/2019	09/04/2023	226	North Western Province	Sunrise Exploration and Mining Limited	90%
23474-HQ-LEL	18/12/2018	17/12/2022	41.58	North Western Province	Sunrise Exploration and Mining Limited	90%

Zambian Small Scale Exploration Licences						
Tenement	Granted	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
23606-HQ-SEL	18/12/2018	17/12/2022	9.4	North Western Province	Sunrise Exploration and Mining Limited	90%
26458-HQ-SEL	10/06/2020	9/06/2024	9.72	North Western Province	Sunrise Exploration and Mining Limited	90%

Western Australian Mineral Exploration Licences						
Tenement	Granted	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
E15/1484 <sup>2</sup>	18/07/2016	17/07/2021	12	Nawock Hayes Hill	Loded Dog Prospecting Pty Ltd	51%
P63/2071 <sup>2, 3</sup>	24/04/2017	23/04/2021	1.37	Hayes Hill	Loded Dog Prospecting Pty Ltd	51%
P63/2072 <sup>2, 3</sup>	24/04/2017	23/04/2021	1.27	Hayes Hill	Loded Dog Prospecting Pty Ltd	51%
P63/2073 <sup>2, 3</sup>	24/04/2017	23/04/2021	1.54	Hayes Hill	Loded Dog Prospecting Pty Ltd	51%
E15/1509 <sup>2</sup>	03/05/2017	02/05/2022	3	Eundynie	Loded Dog Prospecting Pty Ltd	51%
E 15/1510 <sup>2</sup>	08/05/2017	07/05/2022	3	Eundynie	Loded Dog Prospecting Pty Ltd	51%
E 63/1773 <sup>2</sup>	08/05/2017	07/05/2022	21	Hayes Hill	Loded Dog Prospecting Pty Ltd	51%
E15/1523 <sup>2</sup>	08/05/2017	07/05/2022	42	Higginsville	Loded Dog Prospecting Pty Ltd	51%
E 15/1540 <sup>2</sup>	17/05/2017	16/05/2022	9	Higginsville	Loded Dog Prospecting Pty Ltd	51%
P15/6029 <sup>2</sup>	04/07/2017	03/07/2021	1.2	Higginsville	Loded Dog Prospecting Pty Ltd	51%
P15/6030 <sup>2</sup>	25/05/2017	24/05/2021	1.2	Higginsville	Loded Dog Prospecting Pty Ltd	51%
P15/6031 <sup>2</sup>	25/05/2017	24/05/2021	1.2	Higginsville	Loded Dog Prospecting Pty Ltd	51%
P15/6032 <sup>2</sup>	25/05/2017	24/05/2021	1.2	Higginsville	Loded Dog Prospecting Pty Ltd	51%
E15/1489 <sup>2</sup>	14/08/2017	13/08/2022	52	Higginsville	Loded Dog Prospecting Pty Ltd	51%
P63/2077 <sup>2</sup>	26/10/2017	25/10/2021	0.7	Hayes Hill	Loded Dog Prospecting Pty Ltd	51%
E15/1588 <sup>2</sup>	01/12/2017	30/11/2022	61	Higginsville	Loded Dog Prospecting Pty Ltd	51%

Northern Territory Mineral Exploration Licence Applications						
Tenement	Applied	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
EL32445	25/06/2020	-	230.24	T-Bone	Kelaray Pty Ltd	100%
EL32446	25/06/2020	-	63.71	Ranger NE	Kelaray Pty Ltd	100%

**Table 2 - Summary of mining tenements acquired in Quarter**

Tenements acquired in the March 2021 Quarter.

Northern Territory Mineral Exploration Licences						
Tenement	Granted	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
EL 31451	8/09/2017	7/09/2023	466.9	Mount Douglas	Trachre Pty Ltd	100%

Northern Territory Mineral Exploration Licence Applications						
Tenement	Applied	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
ELA32038	22/11/2018	-	127.49	Mount Douglas	Trachre Pty Ltd	100%

South Australian Mineral Exploration Licence Applications						
Tenement	Applied	Expiry	Area (km <sup>2</sup> )	Locality	Licensee	Interest
ELA2020/00124 <sup>2</sup>	28/08/2020	-	952	Cummins	Groundwater Science Pty Ltd	Option to acquire 100%
ELA2021/003 <sup>2</sup>	29/01/2021	-	987	Erudina	Groundwater Science Pty Ltd	Option to acquire 100%

**Table 3 - Summary of mining tenements surrendered in Quarter**

No tenements were surrendered in the March 2021 Quarter.

<sup>1</sup> Kelaray holds a 33% interest in Coombedown Resources Pty. Ltd.

<sup>2</sup> Under option agreement.

<sup>3</sup> Undergoing renewal.

## Appendix 5B

### Mining exploration entity or oil and gas exploration entity quarterly cash flow report

Name of entity

Argonaut Resources NL

ABN

97 008 084 848

Quarter ended ("current quarter")

March 2021

Consolidated statement of cash flows		Current quarter \$A'000	Year to date 9 months \$A'000
<b>1.</b>	<b>Cash flows from operating activities</b>		
1.1	Receipts from customers	-	-
1.2	Payments for		
	(a) exploration & evaluation	-	-
	(b) development	-	-
	(c) production	-	-
	(d) staff costs	(189)	(634)
	(e) administration and corporate costs	(123)	(708)
1.3	Dividends received (see note 3)	-	-
1.4	Interest received	5	10
1.5	Interest and other costs of finance paid	-	-
1.6	Income taxes paid	-	-
1.7	Government grants and tax incentives	-	50
1.8	Other (provide details if material)	-	-
<b>1.9</b>	<b>Net cash from / (used in) operating activities</b>	<b>(307)</b>	<b>(1,282)</b>
<b>2.</b>	<b>Cash flows from investing activities</b>		
2.1	Payments to acquire or for:		
	(a) entities	-	-
	(b) tenements	(116)	(116)
	(c) property, plant and equipment	-	-
	(d) exploration & evaluation	(916)	(1,962)
	(e) investments	-	-
	(f) other non-current assets	-	-

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date 9 months \$A'000</b>
2.2	Proceeds from the disposal of:		
	(a) entities	-	-
	(b) tenements	-	-
	(c) property, plant and equipment	-	-
	(d) investments	-	-
	(e) other non-current assets	-	-
2.3	Cash flows from loans to other entities	-	-
2.4	Dividends received (see note 3)	-	-
2.5	Other (provide details if material)	-	-
<b>2.6</b>	<b>Net cash from / (used in) investing activities</b>	<b>(1,032)</b>	<b>(2,078)</b>

<b>3.</b>	<b>Cash flows from financing activities</b>		
3.1	Proceeds from issues of equity securities (excluding convertible debt securities)	-	5,204
3.2	Proceeds from issue of convertible debt securities	-	-
3.3	Proceeds from exercise of options	-	-
3.4	Transaction costs related to issues of equity securities or convertible debt securities	-	(265)
3.5	Proceeds from borrowings	-	-
3.6	Repayment of borrowings	-	-
3.7	Transaction costs related to loans and borrowings	-	-
3.8	Dividends paid	-	-
3.9	Other (provide details if material)	-	-
<b>3.10</b>	<b>Net cash from / (used in) financing activities</b>	<b>-</b>	<b>4,939</b>

<b>4.</b>	<b>Net increase / (decrease) in cash and cash equivalents for the period</b>		
4.1	Cash and cash equivalents at beginning of period	4,088	1,170
4.2	Net cash from / (used in) operating activities (item 1.9 above)	(307)	(1,282)
4.3	Net cash from / (used in) investing activities (item 2.6 above)	(1,032)	(2,078)
4.4	Net cash from / (used in) financing activities (item 3.10 above)	-	4,939

<b>Consolidated statement of cash flows</b>		<b>Current quarter \$A'000</b>	<b>Year to date 9 months \$A'000</b>
4.5	Effect of movement in exchange rates on cash held	-	-
4.6	<b>Cash and cash equivalents at end of period</b>	<b>2,749</b>	<b>2,749</b>

<b>5.</b>	<b>Reconciliation of cash and cash equivalents</b> at the end of the quarter (as shown in the consolidated statement of cash flows) to the related items in the accounts	<b>Current quarter \$A'000</b>	<b>Previous quarter \$A'000</b>
5.1	Bank balances	2,599	13
5.2	Call deposits	150	4,075
5.3	Bank overdrafts	-	-
5.4	Other (provide details)	-	-
5.5	<b>Cash and cash equivalents at end of quarter (should equal item 4.6 above)</b>	<b>2,749</b>	<b>4,088</b>

<b>6.</b>	<b>Payments to related parties of the entity and their associates</b>	<b>Current quarter \$A'000</b>
6.1	Aggregate amount of payments to related parties and their associates included in item 1	96
6.2	Aggregate amount of payments to related parties and their associates included in item 2	-
<p><i>Note: if any amounts are shown in items 6.1 or 6.2, your quarterly activity report must include a description of, and an explanation for, such payments.</i></p> <p>Amounts included at 6.1 are - \$A'000 Wages 96.</p>		

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

<b>7.</b>	<b>Financing facilities</b> <i>Note: the term "facility" includes all forms of financing arrangements available to the entity. Add notes as necessary for an understanding of the sources of finance available to the entity.</i>	<b>Total facility amount at quarter end \$A'000</b>	<b>Amount drawn at quarter end \$A'000</b>
7.1	Loan facilities	-	-
7.2	Credit standby arrangements	-	-
7.3	Other (please specify)	-	-
7.4	<b>Total financing facilities</b>	-	-
7.5	<b>Unused financing facilities available at quarter end</b>		-
7.6	Include in the box below a description of each facility above, including the lender, interest rate, maturity date and whether it is secured or unsecured. If any additional financing facilities have been entered into or are proposed to be entered into after quarter end, include a note providing details of those facilities as well.		

<b>8.</b>	<b>Estimated cash available for future operating activities</b>	<b>\$A'000</b>
8.1	Net cash from / (used in) operating activities (item 1.9)	(307)
8.2	(Payments for exploration & evaluation classified as investing activities) (item 2.1(d))	(916)
8.3	Total relevant outgoings (item 8.1 + item 8.2)	(1,223)
8.4	Cash and cash equivalents at quarter end (item 4.6)	2,749
8.5	Unused finance facilities available at quarter end (item 7.5)	-
8.6	Total available funding (item 8.4 + item 8.5)	2,749
8.7	<b>Estimated quarters of funding available (item 8.6 divided by item 8.3)</b>	2.25
<i>Note: if the entity has reported positive relevant outgoings (ie a net cash inflow) in item 8.3, answer item 8.7 as "N/A". Otherwise, a figure for the estimated quarters of funding available must be included in item 8.7.</i>		
8.8	If item 8.7 is less than 2 quarters, please provide answers to the following questions:	
8.8.1	Does the entity expect that it will continue to have the current level of net operating cash flows for the time being and, if not, why not?	
Answer: n/a		
8.8.2	Has the entity taken any steps, or does it propose to take any steps, to raise further cash to fund its operations and, if so, what are those steps and how likely does it believe that they will be successful?	
Answer: n/a		

## Mining exploration entity or oil and gas exploration entity quarterly cash flow report

8.8.3 Does the entity expect to be able to continue its operations and to meet its business objectives and, if so, on what basis?

Answer: n/a

*Note: where item 8.7 is less than 2 quarters, all of questions 8.8.1, 8.8.2 and 8.8.3 above must be answered.*

## Compliance statement

- 1 This statement has been prepared in accordance with accounting standards and policies which comply with Listing Rule 19.11A.
- 2 This statement gives a true and fair view of the matters disclosed.

Date: 30<sup>th</sup> April 2021

Authorised by the Board of the Company  
(Name of body or officer authorising release – see note 4)

## Notes

1. This quarterly cash flow report and the accompanying activity report provide a basis for informing the market about the entity's activities for the past quarter, how they have been financed and the effect this has had on its cash position. An entity that wishes to disclose additional information over and above the minimum required under the Listing Rules is encouraged to do so.
2. If this quarterly cash flow report has been prepared in accordance with Australian Accounting Standards, the definitions in, and provisions of, *AASB 6: Exploration for and Evaluation of Mineral Resources* and *AASB 107: Statement of Cash Flows* apply to this report. If this quarterly cash flow report has been prepared in accordance with other accounting standards agreed by ASX pursuant to Listing Rule 19.11A, the corresponding equivalent standards apply to this report.
3. Dividends received may be classified either as cash flows from operating activities or cash flows from investing activities, depending on the accounting policy of the entity.
4. If this report has been authorised for release to the market by your board of directors, you can insert here: "By the board". If it has been authorised for release to the market by a committee of your board of directors, you can insert here: "By the [name of board committee – eg Audit and Risk Committee]". If it has been authorised for release to the market by a disclosure committee, you can insert here: "By the Disclosure Committee".
5. If this report has been authorised for release to the market by your board of directors and you wish to hold yourself out as complying with recommendation 4.2 of the ASX Corporate Governance Council's *Corporate Governance Principles and Recommendations*, the board should have received a declaration from its CEO and CFO that, in their opinion, the financial records of the entity have been properly maintained, that this report complies with the appropriate accounting standards and gives a true and fair view of the cash flows of the entity, and that their opinion has been formed on the basis of a sound system of risk management and internal control which is operating effectively.