

# Quarterly Report

31 January 2022

## Highlights

**Cobalt Blue Holdings Limited**  
A Green Energy  
Exploration  
Company



ASX Code:

**COB**

### Commodity Exposure:

**Cobalt & Sulphur**

### Directors & Management:

**Robert Biancardi** Non-Exec Chairman  
**Hugh Keller** Non-Exec Director  
**Robert McDonald** Non-Exec Director  
**Joe Kaderavek** CEO & Exec Director  
**Danny Morgan** CFO & Company Secretary

### Capital Structure:

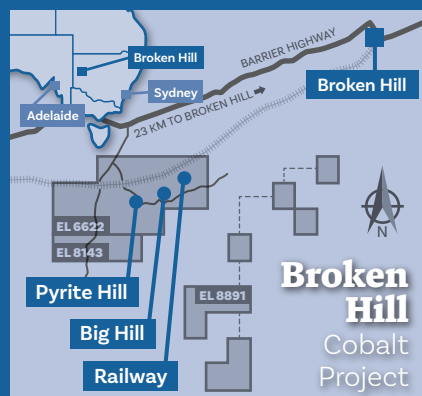
Ordinary Shares at 31/01/2022: **306.3m**

Unlisted Options/Rights: **33.7m**

Market Cap (undiluted): **\$150.0m**

### Share Price:

Share Price at 31/01/2022: **\$0.49**



### Cobalt Blue Holdings Limited

ACN: 614 466 607  
Address: Suite 1703, 100 Miller Street  
North Sydney NSW 2060  
Ph: (02) 8287 0660  
Website: [www.cobaltblueholdings.com](http://www.cobaltblueholdings.com)  
Email: [info@cobaltblueholdings.com](mailto:info@cobaltblueholdings.com)  
Social: [f Cobalt.Blue.Energy](https://www.facebook.com/Cobalt.Blue.Energy)  
[in cobalt-blue-holdings](https://www.linkedin.com/company/cobalt-blue-holdings)

## December 2021 Quarterly Report

### BROKEN HILL COBALT PROJECT

- Production of cobalt sulphate samples
- NSW Government – Critical Minerals and High-Tech Metals Strategy
- Participation in FBI-CRC Cathode Precursor Pilot Plant

### COBALT IN WASTE STREAMS

- Execution of MOU with Queensland Department of Resources

### COBALT TRENDS

- 2021 Market Report – Robust pricing with sulphates outperforming metal
- EV demand trends
- LFP cost advantage transitory

### CORPORATE

- Government meetings
- Expenditure
- Other

## Broken Hill Cobalt Project (BHCP)

### Production of cobalt sulphate samples

During the December quarter COB produced its first cobalt sulphate samples and these were subsequently delivered to partners. The production and dispatch of the cobalt sulphate samples represents an important milestone for the BHCP.

The delivery of the cobalt sulphate samples also marked the formal end of Pilot Plant operations. Planning and procurement works are under way for the Demonstration Plant, with supporting bulk extraction and field work planned over the March quarter.

COB received positive feedback from the samples dispatched to partners over Q3 2021. All samples were within commercial tolerances with feedback centred on customising products to individual customers.

A number of the partners that received the Pilot Plant samples are now shortlisted for large sample batches (up to 100 kg) to be supplied from the Demonstration Plant activities in 2022. These large samples are required for acceptance testing and production of laboratory scale batteries.

COB expects to update the market with an overall commercial cobalt sulphate specification in due course. Product specifications will be discussed with cobalt sample partners in the first instance and COB expects iterative development of specifications to match individual battery maker needs precisely.

Figure 1 – **Filtering MHP precipitate**

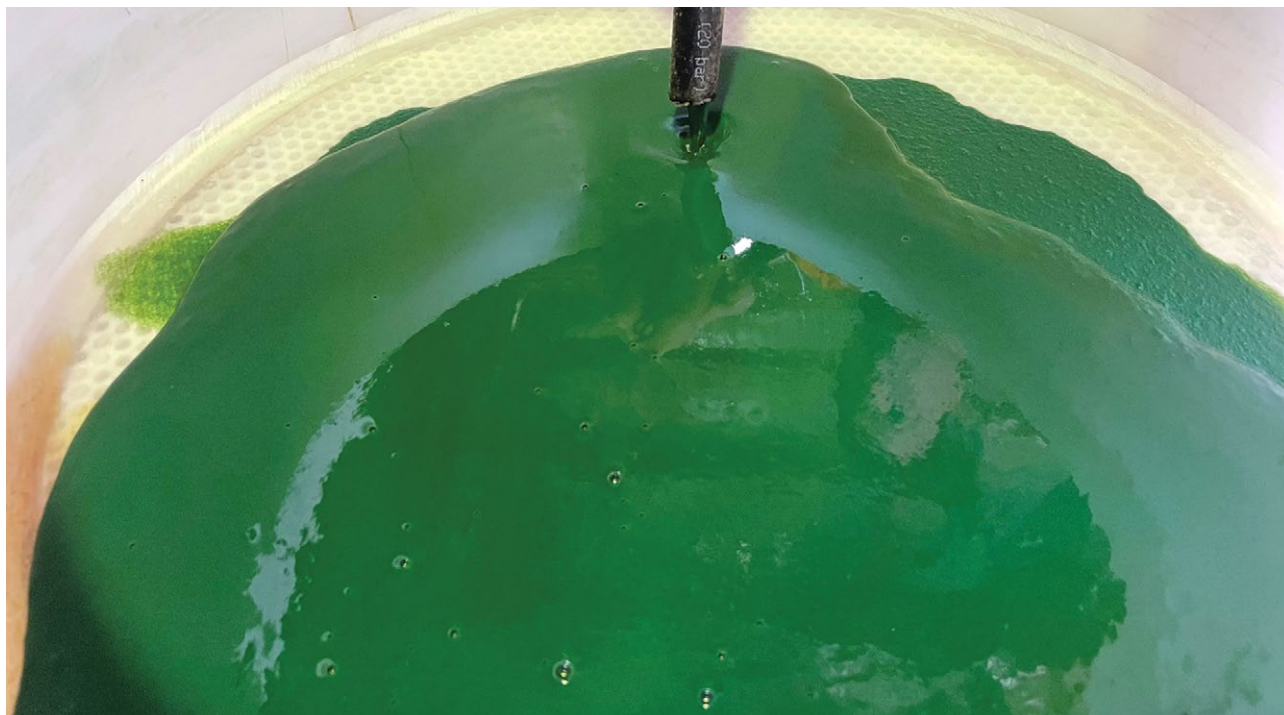


Figure 2 – **Solvent extraction separation of cobalt**

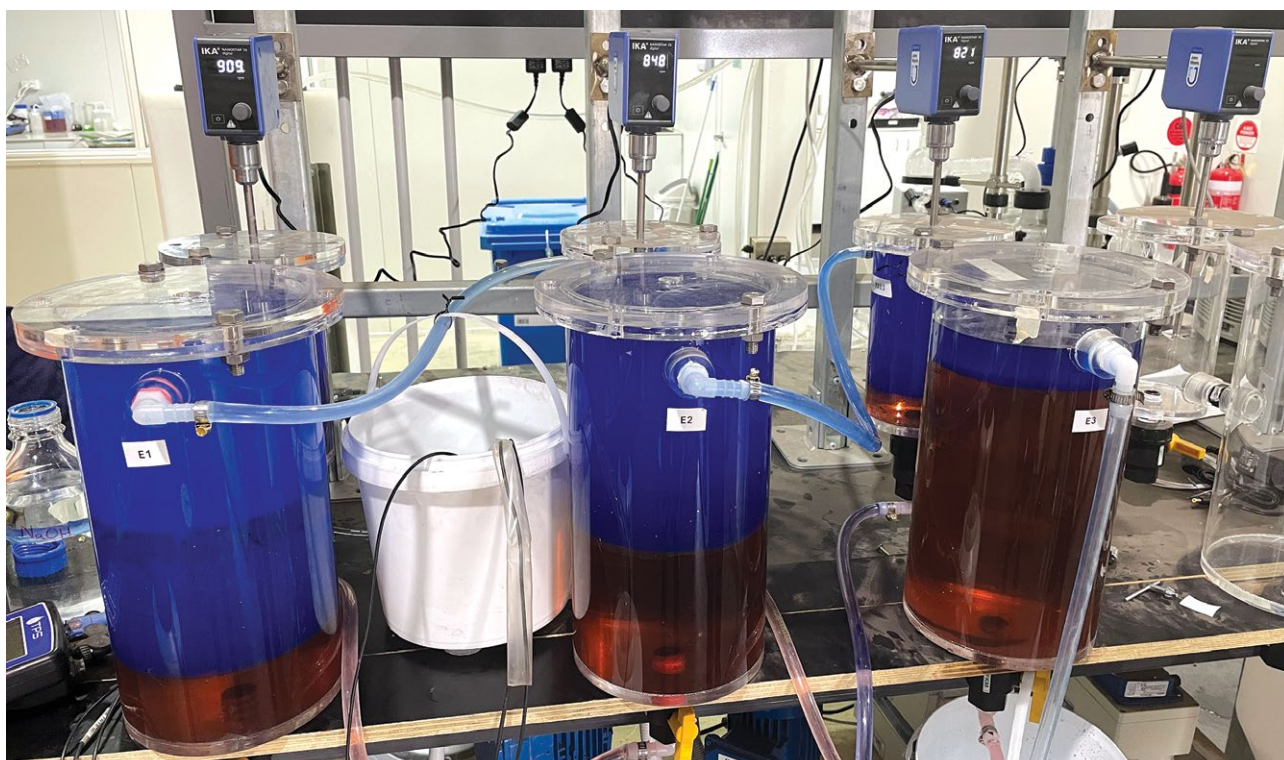


Figure 3 – Cobalt sulphate heptahydrate crystals



### NSW Government – Critical Minerals and High-Tech Metals Strategy

On 29 November 2021 the Deputy Premier and the Minister for Resources launched the NSW Critical Minerals and High-Tech Metals Strategy (Strategy). The NSW government has recognised the opportunity for NSW to become a global leader in the battery ecosystem, with the extraction and processing of cobalt, the production of battery components and battery cells, exporting finished products and recycling end of life battery materials from waste streams.

To deliver the Strategy the NSW Government will:

1. Establish Australia's first Critical Minerals Hub in the Central West of NSW.
2. Promote exploration for critical minerals resources.
3. Activate the industry through proactive development of supply chains.
4. Attract investment for critical minerals resources downstream processing.

COB welcomed the Strategy and the support of the NSW Government in facilitating the development of critical minerals projects and downstream energy. The Strategy is an important development for the BHCP, which was also recognised as being a key NSW based cobalt project, aiming to provide cathode materials for the global battery precursor supply chain. Further information on the Strategy is available at <https://www.nsw.gov.au/criticalminerals>.

### Participation in FBI-CRC cathode Precursor Pilot Plant

COB has been a member of the Australian Government Future Battery Industries – Cooperative Research Centre (FBI-CRC) since its inception in 2019. One key FBI-CRC project is the proposed Cathode Precursor Pilot Plant in Perth.

During the December quarter, COB announced that the FBI-CRC had recently signed contracts totalling A\$18m with 19 project participants for the design and commissioning of the Cathode Precursor Pilot Plant (<https://fbicrc.com.au/fbicrc-signs-contract-for-18m-flagship-cathode-precursor-production-pilot-plant/>).

COB will provide cobalt sulphate from the BHCP Demonstration Plant to the Cathode Precursor Pilot Plant.

The 19 participants in the FBI-CRC consortium include international organisations, smaller enterprises, research participants and the Minerals Research Institute of Western Australia on behalf of the WA Government.

Installation and commissioning of the Cathode Precursor Production Pilot Plant is due to take place between January and March 2022. An 18-month pilot campaign period will follow.

The project will use locally sourced materials to produce current generation NCM 811 and NCM 622 cathode chemistries used in electric vehicles. Australia currently exports the main commodities used in batteries (lithium, nickel, manganese and cobalt) in the form of mineral concentrates, with very little value-added from the manufacturing of lithium-ion battery materials retained in Australia.

This presents a significant commercial option for COB, with the BHCP set to mine and refine cobalt to meet growing global demand.

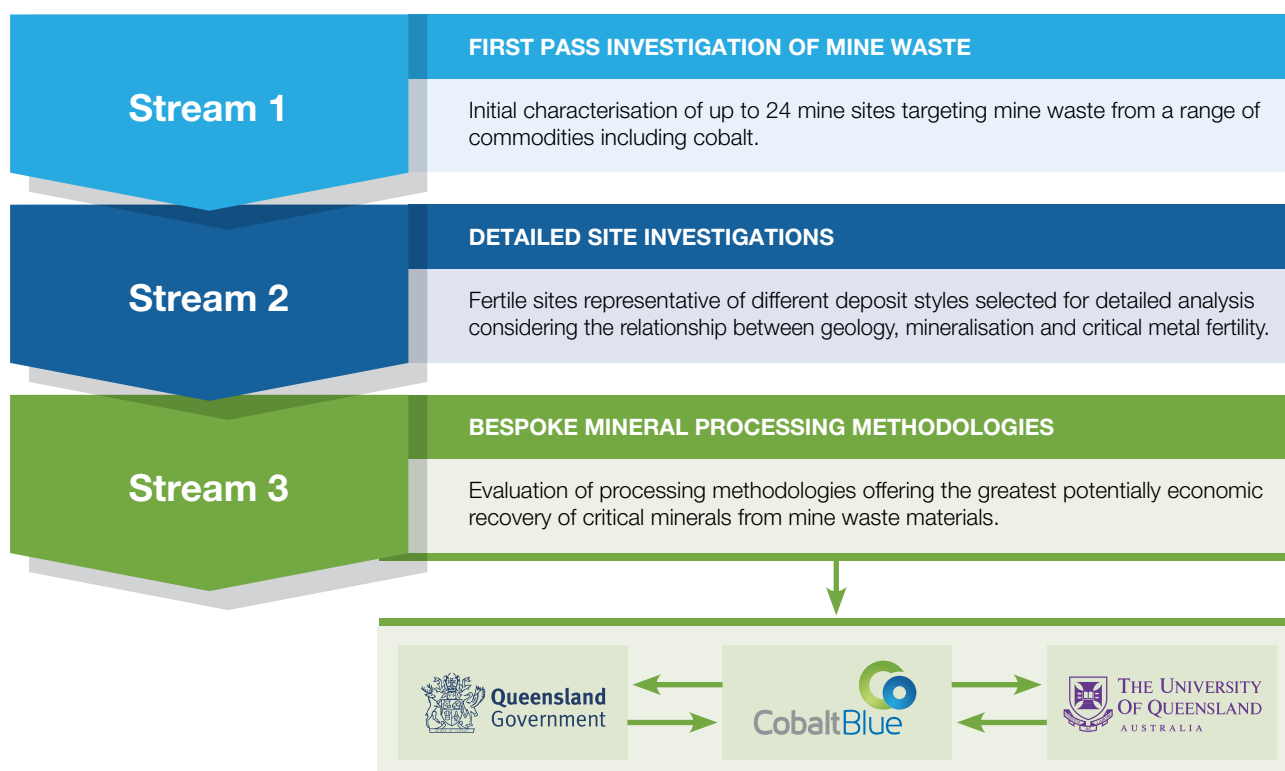
## Cobalt in Waste Streams Project

### Execution of MOU with Queensland Department of Resources

During the December quarter COB executed a Memorandum of Understanding ('MOU') with the State of Queensland, acting through the Department of Resources ('Department'), to assess opportunities for the recovery of cobalt (and any coexisting base and precious metals) from mine waste.

In November 2019 the Queensland Government announced a \$13m funding package to advance the discovery and development of 'new economy minerals' within Queensland. The 'New Economy Minerals Initiative' considers a number of targeted projects including a Secondary Prospectivity Project examining the potential of mine waste (tailings, stockpiles, waste dumps) for critical minerals, conducted in collaboration with researchers from the Sustainable Minerals Institute, The University of Queensland.

The Secondary Prospectivity Project comprises three primary work streams as illustrated below.



Stream 3 considers the evaluation of minerals processing options targeting the economic recovery of critical minerals from sources of mine waste (tailings, stockpiles, waste dumps). Under the MOU, COB will undertake metallurgical testwork for Stream 3. The MOU provides:

- COB will undertake testwork to evaluate minerals processing options, including though not limited to the application of its proprietary minerals processing technology to recover target metals from feedstocks nominated and provided by the Department. There is no guarantee that feedstocks will be provided by the Department.
- On completion of any testwork, COB will provide the Department with a report detailing the testwork and results for each site.
- COB will retain sole ownership of any new intellectual property created during testwork subject to the MOU.

Initial samples for testwork are expected to be received in Q1 2022.

# Cobalt Trends

## 2021 Market Report – Robust pricing with sulphates outperforming metal

European metal prices lifted materially during 2021 from the low to mid US\$20s /lb towards low to mid US\$30s/lb range by year end, substantially above average prices from 2019–20 of ~US\$16 /lb.

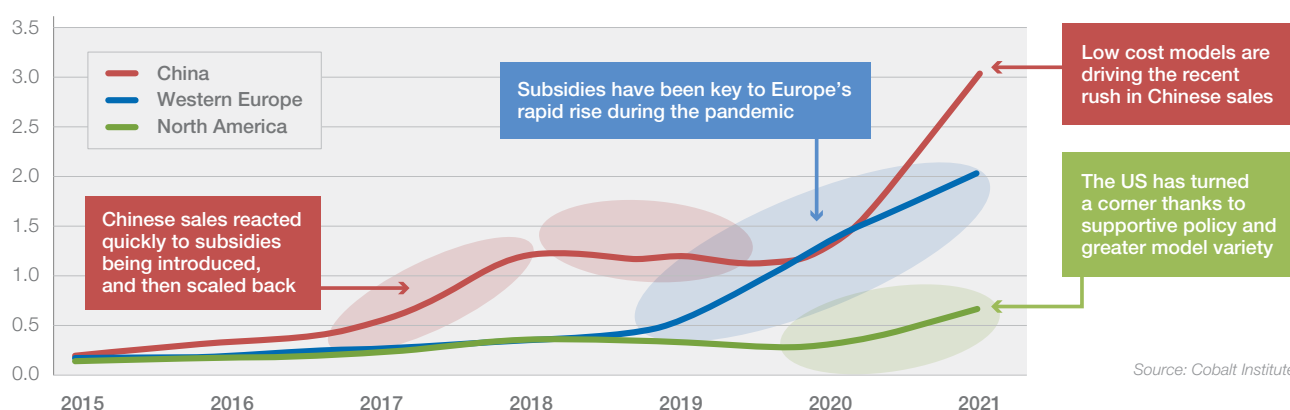
European metal prices continue to remain below Chinese metal prices since May 2020 due to the relative strength of each market and have averaged ~\$3 /lb lower over 2021. Chinese sulphate prices have remained above metal for most of 2021, averaging a premium of ~\$1 /lb. Market conditions remain tight, particularly for intermediates, and spot market activity has improved following the Northern Hemisphere summer and as 2022 contracts are under negotiation. Some end users are reported to be seeking to negotiate larger contract volumes this year in anticipation of ongoing tight market conditions.

## EV demand trends

EV sales continue to grow at pace, with all major automotive markets now seeing strong growth. Q3 EV sales stabilised in both Europe and North America but increased as a share of the automotive market as combustion engine vehicles faced headwinds from ongoing silicon chip shortages. Q4 is expected to continue the growth trend as EV sales typically rise towards year end. The US EV market is being supported by greater model availability and variety alongside financial incentives, after weakness in 2019–20. The Biden administration has set a 40–50% target for 2030, with similar from Ford and GM.

Cobalt demand from the EV sector has been the key driving force in 2021, accounting >60% of annual market growth. Cobalt oxide demand from Li-ion batteries in mobile phones and laptops are the second largest driver.

Figure 4 – Global EV Car Sales (million vehicles)



## LFP cost advantage transitory

Lithium Iron Phosphate (LFP) batteries do not contain cobalt and can be produced at a lower cost. The metals including nickel and cobalt accounts for much of the cell level cost advantage. However, LFP's specific energy density (KWh/kg) is ~30% lower as compared to the current (LG Energy Solutions) Nickel Cobalt Manganese (NCM) 721 cell. With the shift to next generation nickel chemistries, that gap widens to ~45%. According to UBS Bank, as compared to the NCM 721 cell, LFP has a +\$20 KWh cost advantage. However, as energy density rises with the next generation nickel cells that launch from this year, the LFP cost advantage narrows to \$2-3 KWh. In the long term, higher energy density is needed to lower costs, increase range and deliver lighter / smaller battery systems. LFP lacks a clear technology path to achieve higher energy density, and this will limit market share potential to shorter range entry level / mass market vehicles.

## Corporate News

### Government meetings

During the December Quarter CEO Joe Kaderavek met with Korean President Moon Jae-in. COB participated in a critical minerals supply chain discussion with senior Korean government officials. The company was invited to attend the select meeting hosted by the Korean Embassy and Australia Korea Trade Commission in Sydney on 14 December 2021.

Figure 5 – COB CEO with Korean President Moon Jae-in



### Expenditure

COB's activities primarily relate to exploration and evaluation of the Broken Hill Cobalt Project. There were no activities related to production or development. During the quarter COB incurred<sup>1</sup> \$1.2m on exploration and evaluation activities, primarily relating to technical services.

COB's accompanying Appendix 5B (Quarterly Cashflow Report) includes an amount in item 6.1 which constitutes directors' fees and salaries.

### Other

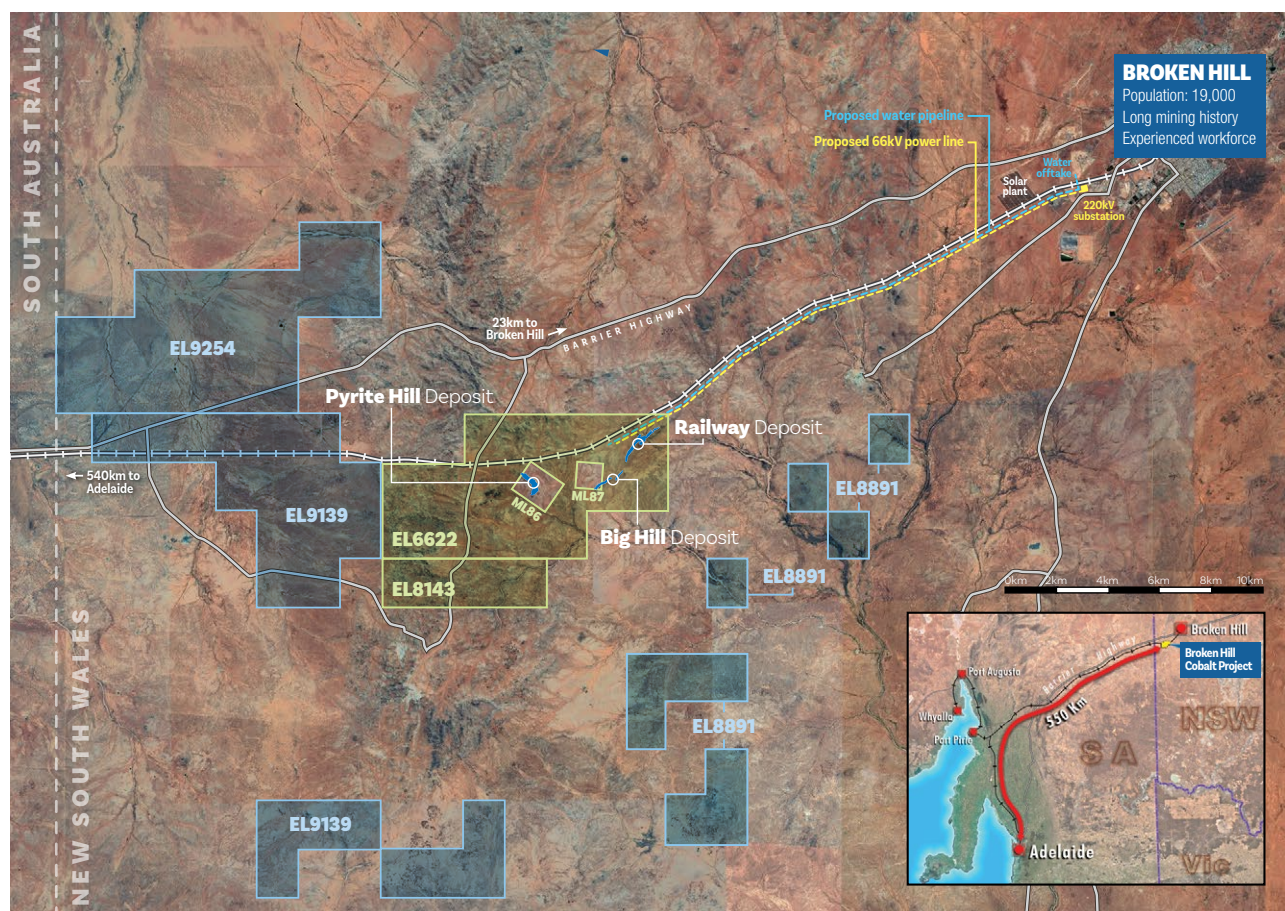
During the quarter COB's share price fluctuated between 28 cents and 50 cents.

<sup>1</sup> Refers to expenditure incurred on an accounting accruals basis as distinct from expenditure reported in the Appendix 5B, which refers to expenditure on a cash basis. The amounts were extracted from the unaudited records of the COB Group.

## The Broken Hill Cobalt Project

The Broken Hill district map shows the proximity of the Broken Hill Cobalt Project to Broken Hill, the supporting rail line and road network, as well as the availability of both power and water utilities to support future production.

Figure 6 – **Broken Hill Cobalt Project Tenement Map**



## Cobalt Blue Background

Cobalt Blue Holdings Limited (ASX: COB) is an exploration and project development company. Work programs advancing the Broken Hill Cobalt Project in New South Wales continue. Cobalt is a critical metal in strong demand for new generation batteries, particularly lithium-ion batteries now being widely used in clean energy systems.

Looking forward, we would like our shareholders to keep in touch with COB updates and related news items, which we will post on our website, the ASX announcements platform, as well as social media such as Facebook (f) and LinkedIn (in). Please don't hesitate to join the 'COB friends' on social media and to join our newsletter mailing list at our website.



**Joe Kaderavek**  
Chief Executive Officer  
info@cobaltblueholdings.com  
P: +61 2 8287 0660

This announcement was approved by the Board of Directors.

## Previously Released Information

This ASX announcement refers to information extracted from the following reports, which are available for viewing on COB's website <http://www.cobaltblueholdings.com>.

- 21 December 2021: COB executes MOU with State of Queensland: Recovery of cobalt from mine waste
- 1 December 2021: NSW Government – Critical Minerals and High-Tech Metals Strategy
- 28 October 2021: Pilot Plant successfully produces cobalt sulphate samples
- 26 October 2021: Cobalt Blue participation in Cathode Precursor Pilot Plant

COB confirms it is not aware of any new information or data that materially affects the information included in the original market announcements and where applicable in the case of estimates of Mineral Resources or Reserves, that all material assumptions and technical parameters underpinning the estimates in the relevant market announcements continue to apply and have not materially changed. COB confirms that the form and context in which any Competent Person's findings presented have not been materially modified from the original market announcement.

## Tenement Holding

The COB Group held the following mining tenements at the end of the quarter:

### Broken Hill Cobalt Project

Tenement	Location	Interest at end of quarter
EL 8891	Broken Hill Region, New South Wales	■ 100% legal and beneficial interest
EL 6622	Broken Hill Region, New South Wales	■ 100% legal and beneficial interest
EL 9254	Broken Hill Region, New South Wales	■ 100% legal and beneficial interest
EL 8143	Broken Hill Region, New South Wales	■ 100% legal and beneficial interest
EL 9139	Broken Hill Region, New South Wales	■ 100% legal and beneficial interest
ML 86	Broken Hill Region, New South Wales	■ 100% legal and beneficial interest
ML 87	Broken Hill Region, New South Wales	■ 100% legal and beneficial interest

No tenements or farm-in or farm-out agreements were disposed of during the quarter.