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21 June 2022

Analyst Site Visit
Broken Hill Cobalt Project

ASX: COB

CobaltBlue

Joe Kaderavek

CEO

ASX: COB

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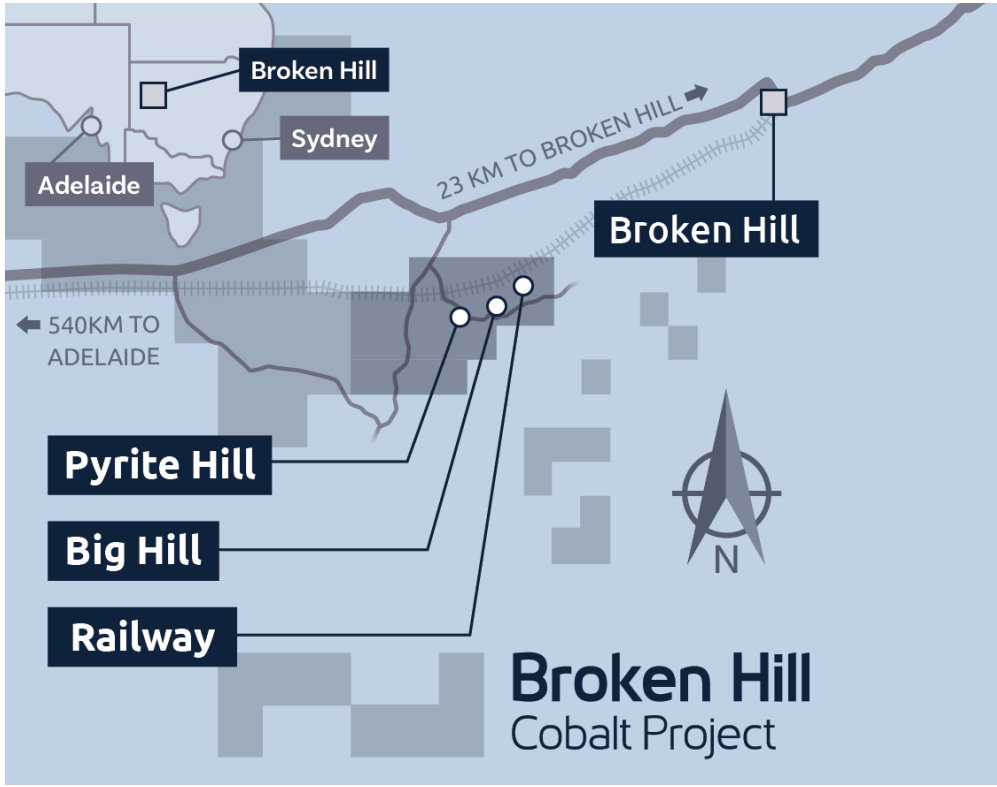
Our Aim: Australian Ethical Cobalt Producer

The directly integrated BHCP solution offers a vastly superior emission footprint and ethical value chain over alternatives

1. **Volume certainty:** Long life, large volume cobalt supply. BHCP represents 10% of non-DRC cobalt supply by 2025. Enough cobalt to enable ~300k Electric Vehicles (EVs) per year (5m over life of mine).
2. **Supply and ESG certainty, ex-DRC mine:** Chemical processing at site to specification, full supply chain transparency "from Broken Hill to global partners."
3. **Customised cobalt products** to meet tightening EV production specifications.
4. **Waste Streams Project** offers optionality beyond mining.



Source: Cobalt Blue Holdings Limited

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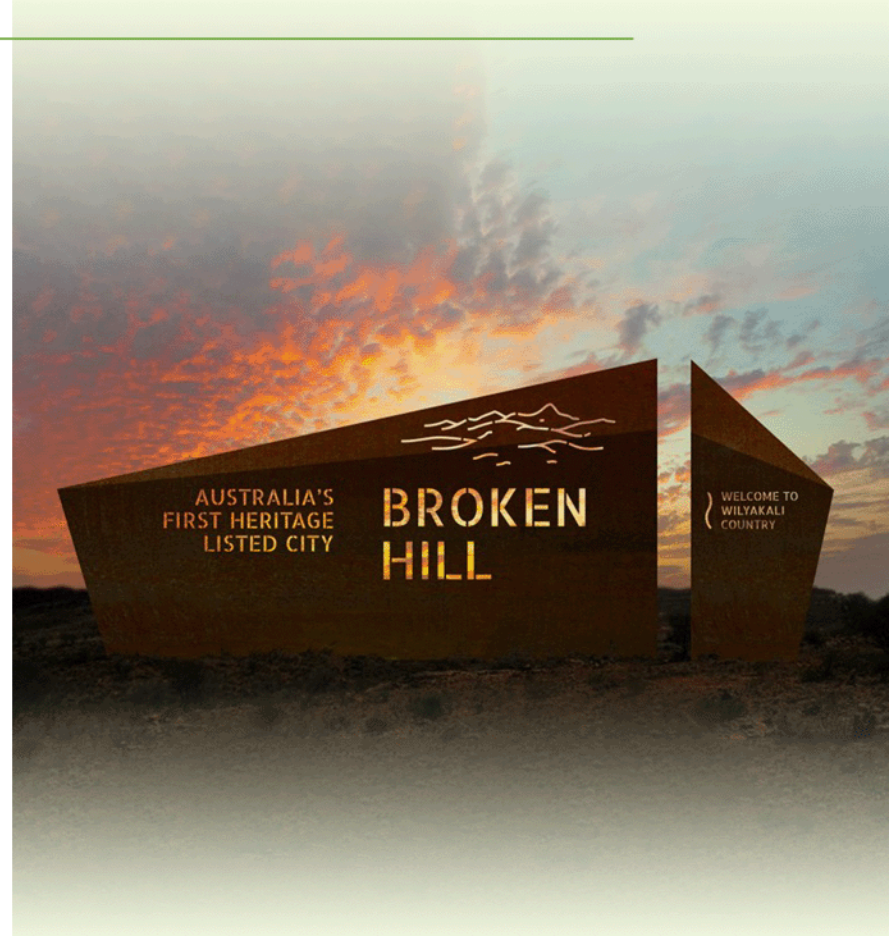
BHCP: Capital Structure

Capital Structure:

- Ordinary Shares at 20/06/2022: **321.2m**
- Options (unlisted): **19.0m**
- Promissory Note[1] (5yr to 2025): **$3.0m**
- Market Cap (undiluted): **$191m**

Share Price:

- Share Price at 20/06/2022 : **$0.595**



1. *3 years interest free, then 6% pa interest, paid annually in arrears. Can be repaid anytime in whole or in part without penalty*

Source: Cobalt Blue Holdings Limited

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BHCP: Where we stand

Achievements

- ✔ **Project Update 2020** (PFS update)
- ✔ **Pilot Plant development** and qualification samples (2021)
- ✔ **Major Project Status** (March 2022)
- ✔ **Participant in bilateral** Critical Minerals discussions Korea/USA (Mar/Apr 2022)
- ✔ **Critical Minerals** Accelerator grant (April 2022)
- ✔ **Demonstration Plant** Commissioning commenced (May 2022)

Goals

- **Project Partners** (end-2022)
- **DFS and Approvals** (2023)
- **Cobalt in Waste Streams** project (from 2022)

Source: Cobalt Blue Holdings Limited

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BHCP: Strategic Outlook

Building on existing commercial partnerships…

- **LG International:** First Mover partnership provides capital and technical assistance on high purity battery grade cobalt sulphate.
- **Cooperative Research Centre & Future Batteries Industries (FBI)** project to fund and validate our refining process research and participate in development of Australian battery industry.
- **Sojitz Corporation** (cobalt), **Mitsubishi Corporation** (sulphur).

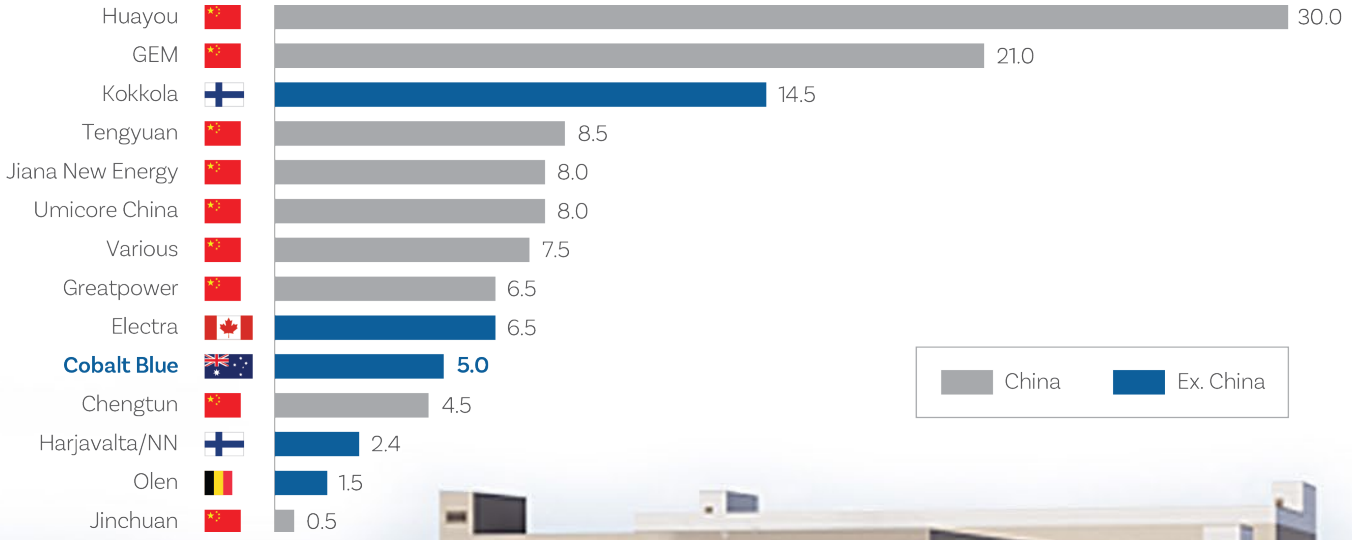
…to develop our ambitions

- **Bilateral Critical Mineral relationships** – Korea / USA / Japan / Europe.
- **Cobalt in Waste Streams Project (CWSP)** – key QLD Govt agreement executed.
- **Enabling development of a pCAM / CAM industry** – early stages of a domestic battery supply chain district concept.

Source: Cobalt Blue Holdings Limited

Australian battery supply chain?

Global battery grade sulphate capacity, 2023 (Kt Co)



Source: Cobalt Blue Holdings Limited

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Andrew Tong

Executive & Technical Manager

ASX: COB

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BHCP: Integrated mine and refinery

Project

- 17-year project life (current estimates)
- C1 cash cost US$9.34/lb cobalt, ASIC US$12.13/lb cobalt
- Annual production 3,500 t cobalt, as MHP or CoSO4 (cobalt sulphate)
- Annual production 300,000 t elemental sulphur

Mining

- Multi-pit open cut mining operation to depths of 250–300m
- ~5-6Mt ore to 1Mt concentrate annually, life of mine 2.9:1 waste:ore strip ratio

Processing

- 85% recovery of cobalt from ore to product
- Low chemical requirements, water recycled where possible.
- Environmentally stable residues (hematite + sulphur)

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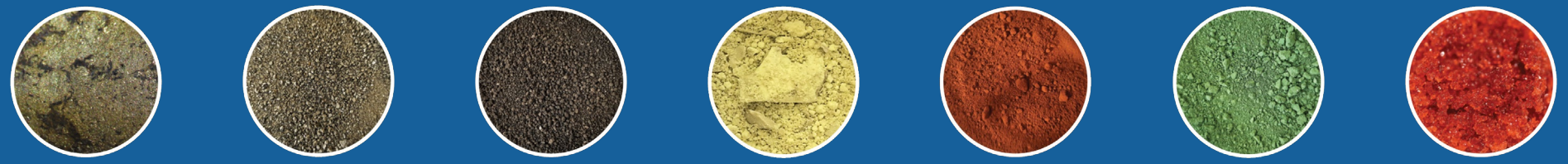
The Pilot Plant > Demonstration Plant

4Q 2021 – Operations of the Pilot Plant finalised

- 25 samples of MHP / $CoSO_4$ sent to prospective clients in Korea, Japan, India, and Europe
- Performance informed demonstration plant design

2Q 2022 – Demonstration plant commissioning commenced

- Underground development to extract ~4kt ore from the Pyrite Hill deposit to provide a sample for the demonstration plant
- Enough material to run 24/7 for ~20 weeks
- Performance / engineering data will advance BHCP with reliable data, and better inform offtake discussions



Ore
Pyrite/Albite

Concentrate
Pyrite – FeS_2

Calcine
Pyrrhotite – Fe_7S_8

Elemental Sulphur

Leach Residue
Fe_2O_3

Co-Ni Mixed Hydroxide

Cobalt Sulphate
$CoSO_4.7H_2O$

Source: Cobalt Blue Holdings Limited

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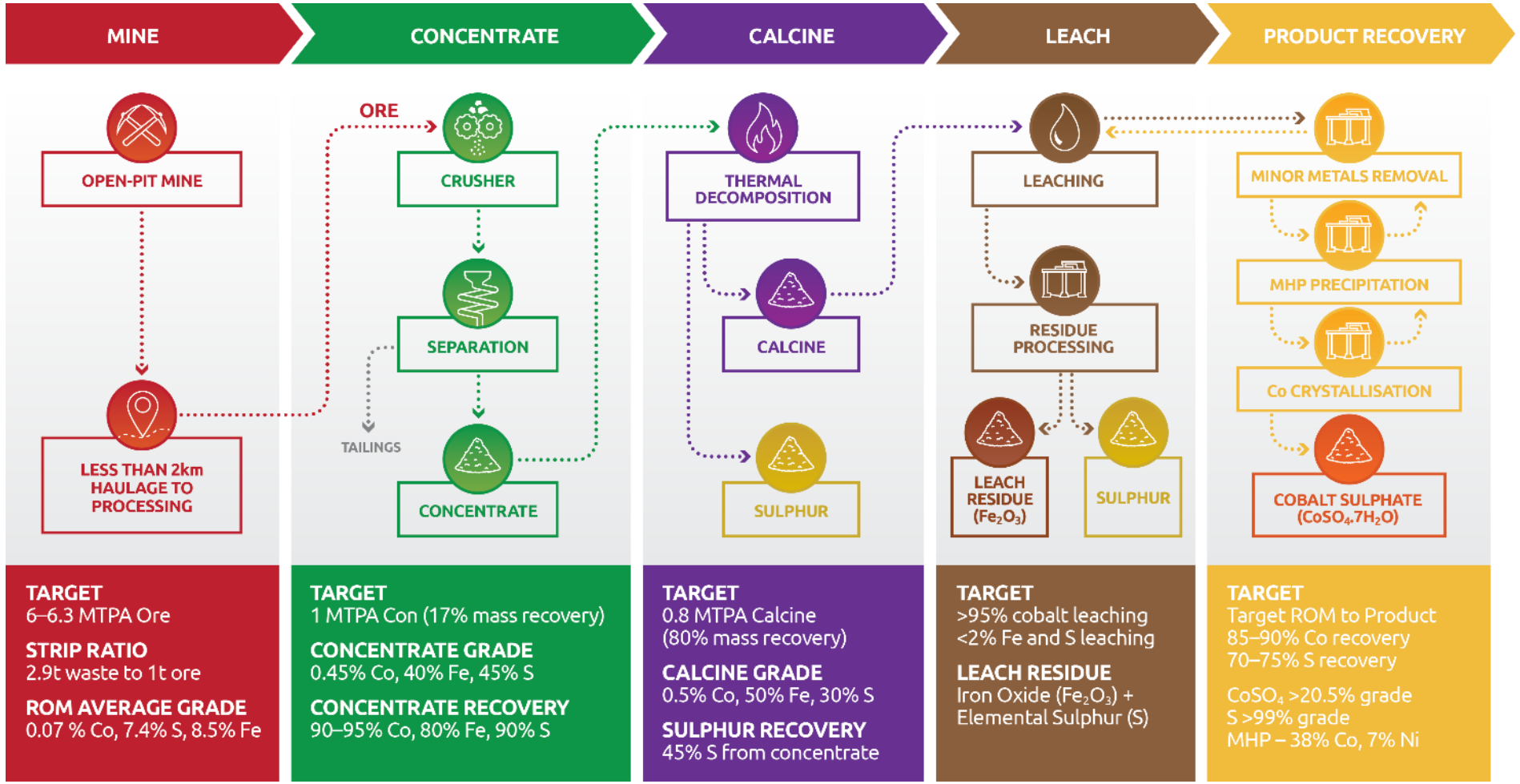
BHCP Flowsheet



Source: Cobalt Blue Holdings Limited

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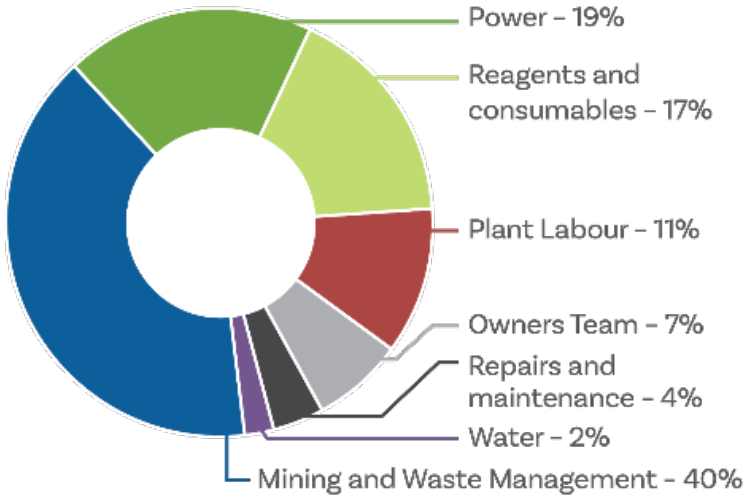
BHCP: Capital and Operating Costs

LOM Operating Costs

- Cobalt Sulphate ~US$12.13/lb (ASIC)
- Cobalt Hydroxide (MHP) ~US$9.34/lb (C1)
- Economic resilience (px vs LT)

Operating Cost Breakdown



Pre-Production Capital Costs (A$m)

Process Plant	$343 (60%)
Infrastructure	$137 (24%)
Mine Development	$38 (7%)
Mine Fleet	$22 (4%)
Other	$20 (4%)
Total	**$560**

Source: Cobalt Blue Holdings Limited

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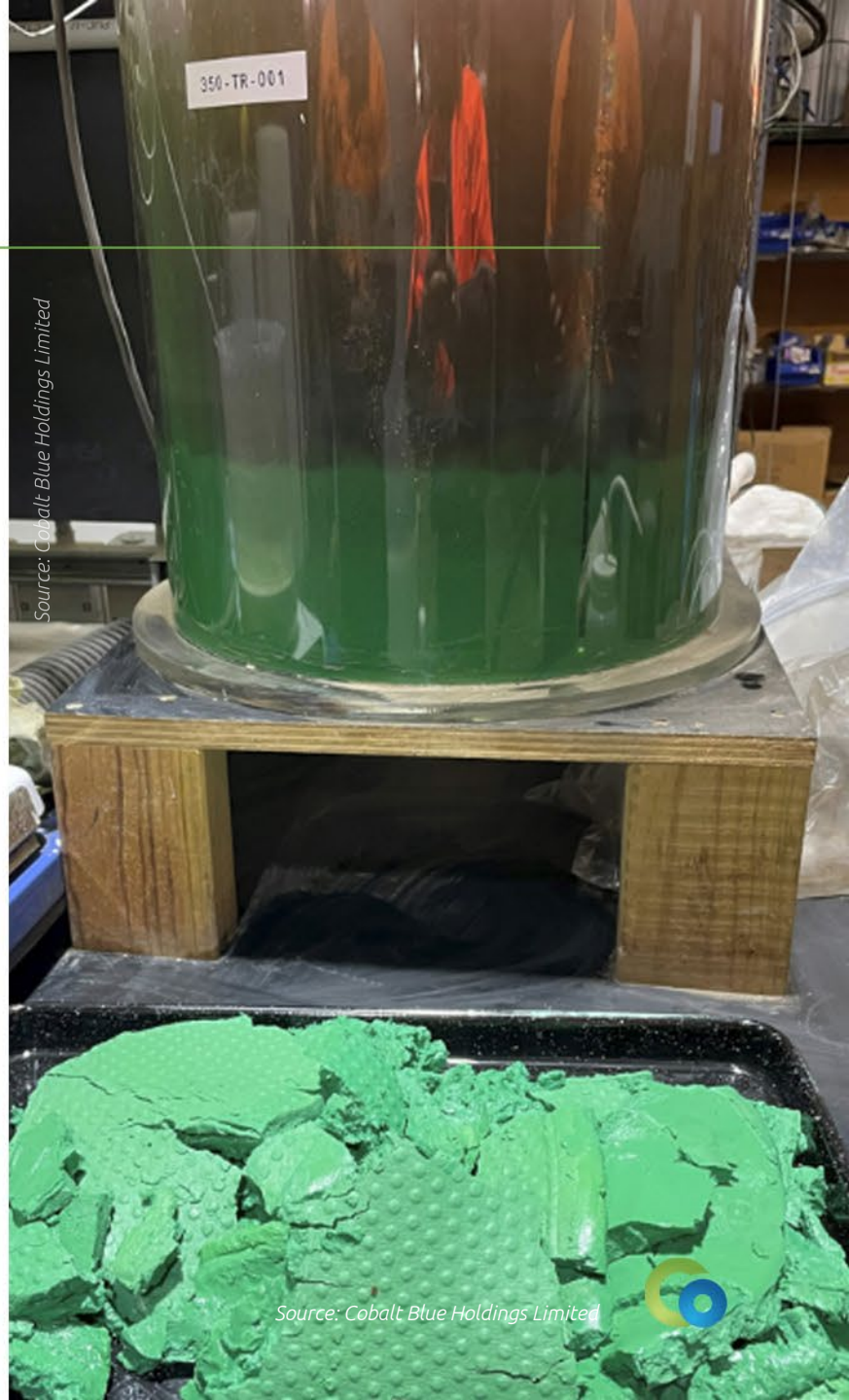
BHCP: MHP

BHCP – Co-Ni Mixed Hydroxide Product (MHP)

- High Grade: 37% cobalt.
- Byproduct Credit: 7% nickel.
- Low trace metal impurities – Cu, Fe, Mn.
- Trading terms typical grade is 30% Co content.

Typical content from testwork:

Ca	Co	Cl	Cu	Fe	Mn	Ni	Zn
2.5 %	37 %	7 %	0.01 %	0.07 %	0.85 %	7 %	0.1 %



Source: Cobalt Blue Holdings Limited

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BHCP: Cobalt Sulphate

BHCP – Cobalt Sulphate Heptahydrate ($CoSO_4.7H_2O$)

- High Grade: 20.8% cobalt.
- Low trace metal impurities.

Metal	Units	COB	AVG 9 producers
Co	%	>20.8%	>20.5
Al	ppm	2	<10
As	ppm	<1	<5
Ca	ppm	<0.01	<10 (can be up to 100)
Cd	ppm	<0.001	<10
Cr	ppm	<0.01	<5
Cu	ppm	1	<10
Fe	ppm	<1	<10
K	ppm	0.6	<5 (can be up to 100)
Mg	ppm	27	<20 (can be up to 100)
Mn	ppm	5	<10 (can be up to 100)
Na	ppm	128	<20 (can be up to 100)
Ni	ppm	<10	<10 (can be up to 100)
Pb	ppm	<0.05	<10
Si	ppm	<0.5	<20
Zn	ppm	<2	<10

Source: Cobalt Blue Holdings Limited

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BHCP: Elemental Sulphur

BHCP – Elemental Sulphur

- >99% purity (max 0.2% Fe, 0.5% SiO_2)
- Physical Form: Prills (2–5 mm)
- Australia: 1mtpa deficit market:
  - fertiliser feedstock (55%)
  - metallurgical consumption (43%)

Al	600	ppm
Ca	160	ppm
Co	<20	ppm
Fe	0.10	%
Mg	60	ppm
Na	100	ppm
SiO_2	0.45	%
S	99.3	% by difference

Source: Cobalt Blue Holdings Limited

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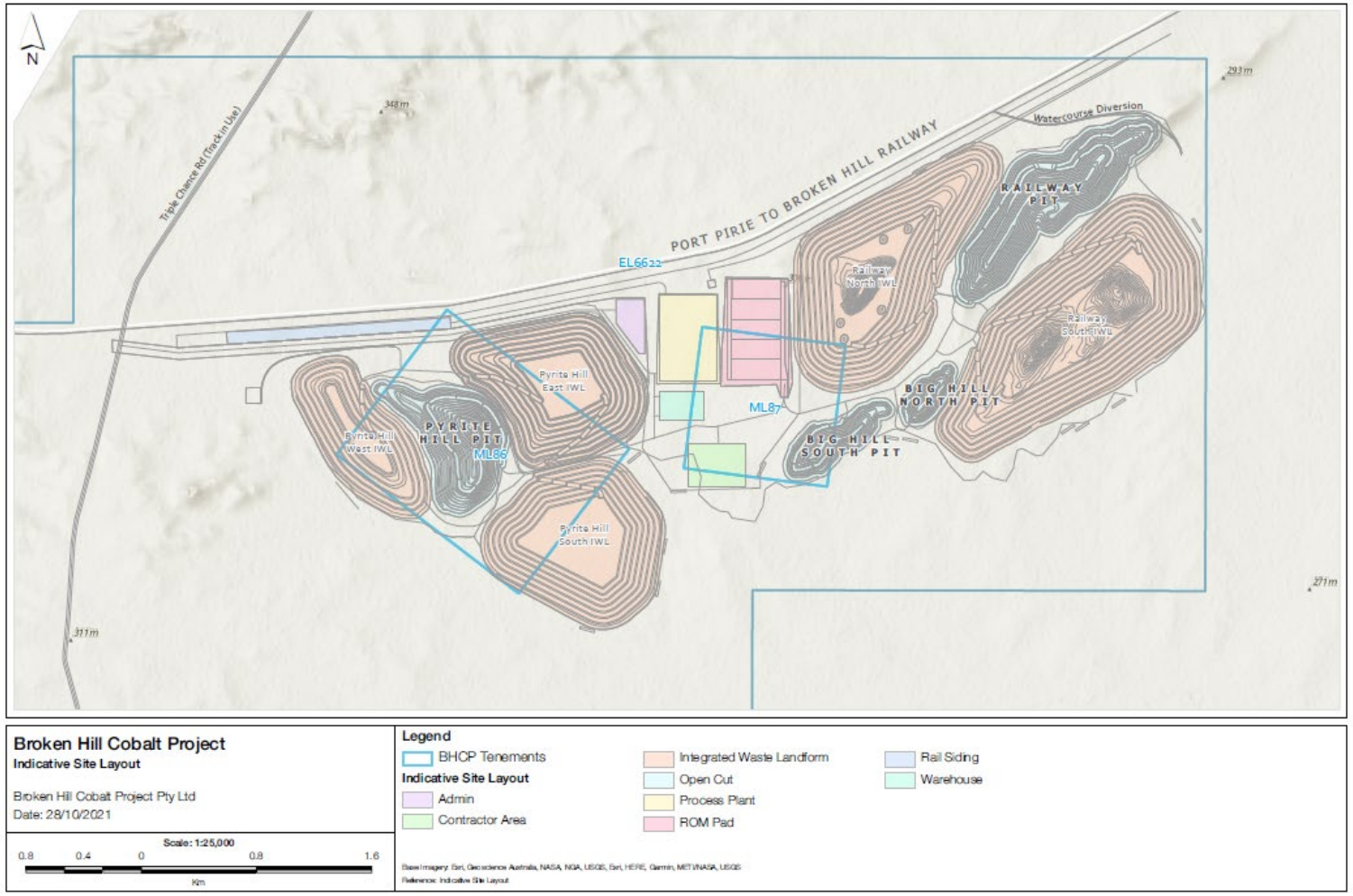
BHCP: Proposed site layout



Source: Cobalt Blue Holdings Limited

Adam Randall

Demonstration Plant Manager

ASX: COB

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Demonstration Plant Update: Pyrite Hill

- **Decline development** has been completed with the first 1,000t of ore delivered to surface for processing
- **Staged commissioning** of the site concentrator to commence shortly.

Source: Cobalt Blue Holdings Limited

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Pyrite Hill Bulk Sample Operations

Pyrite Hill Bulk Sample ROM

Ore primary crushing in progress. ROM ore is crushed through jaw crusher to <75mm, then cone crusher to <22mm. That is then screened over a 4.5mm screen.

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Pyrite Hill Bulk Sample Operations

Fine screened material. Although the screen aperture is 4.5mm, the material that passes the screen is mostly much finer. This is then fed into the roller mill to reduce all particles to <1.2mm.

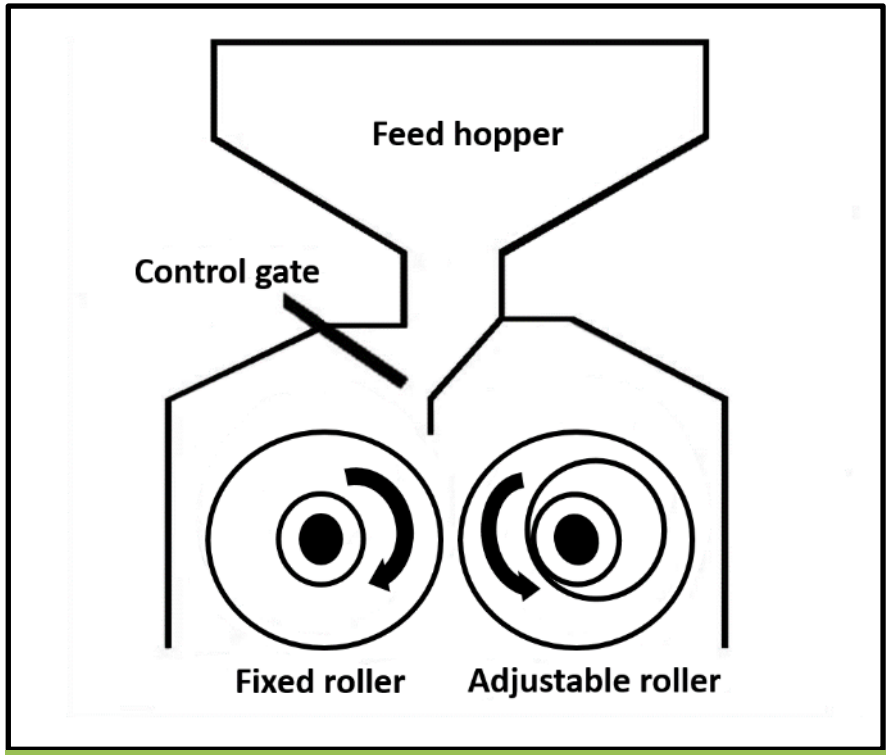

Diagram of the roller mill

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Pyrite Hill Bulk Sample Operations

Concentrate plant – spirals and flotation

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Demonstration Plant Update: Broken Hill Plant

Filtration plant assembly complete

Source: Cobalt Blue Holdings Limited

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Pressure Leach circuit

Left: *Upgraded Pox circuit installed.*

Right: *New design for flash vessel incorporates agitator*

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Pressure Iron Oxidation circuit

Upgraded high pressure iron oxidation circuit installed.

This new circuit provided additional processing capacity to oxidise and precipitate iron in multiple stages.

Temporary cabling installed for initial commissioning runs.

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Kiln being delivered to site

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BHCP: Stakeholder engagement

Unanimous local support – BHCP offers a long-term community future

BHCP offers locals, community groups and businesses :

- Direct jobs
- Economic development
- Training and education
- Population retention

Substantial engagement with:

- Local business
- Broken Hill City Council
- Foundation Broken Hill
- Community enhancement / donations
- Elected representatives at Federal, State and Local level

BHCP Staff: 30 local employees

Source: Cobalt Blue Holdings Limited

"The momentum generated by the Cobalt Blue project is a massive positive for Broken Hill and the surrounding region. Our goal is for Broken Hill to be at the forefront of the renewable energy and energy storage industries, and the Cobalt Blue project will be a key factor in realising this vision for the city."

Broken Hill Mayor Tom Kennedy

Heath Porteous

Exploration Manager

ASX: COB

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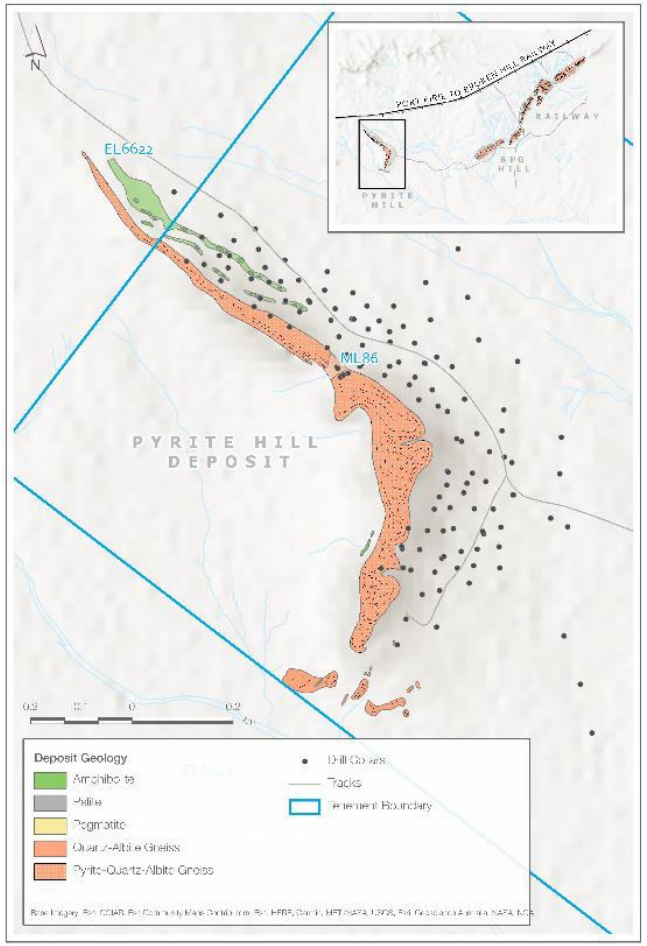
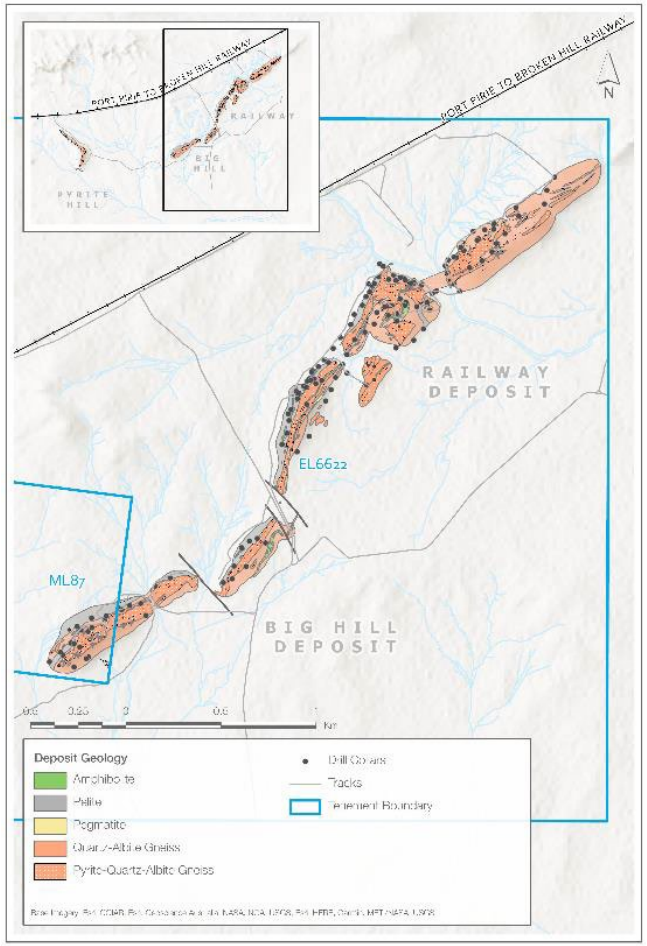
The Geology

- The Broken Hill cobalt deposits comprise stratabound units of moderate to steeply dipping, pyritic quartz-albite gneiss.
- The mineralisation forms three deposits; **Pyrite Hill, Big Hill & Railway.**
- Mineralisation generally comprises **10–35% sulphides** (almost exclusively pyrite), **25–45% quartz, 25–55% albite** & minor amounts of micas, clays and iron minerals.





Source: Cobalt Blue Holdings Limited

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Mineral Resources & Ore Reserves

Mineral Resource

Classification	Mt	CoEq (ppm)	Co (ppm)	S (%)	Ni (ppm)	Contained Co (kt)	Contained S (kt)	Contained Ni (kt)
BHCP (inclusive of Pyrite Hill, Railway & Big Hill)								
Measured	18	1,276	1,030	10.9	191	18.3	1,935	3.4
Indicated	59	788	631	6.9	123	37.1	4,062	7.2
Inferred	41	781	619	7.2	123	25.6	2,979	5.1
Total	**118**	**859**	**687**	**7.6**	**133**	**81.1**	**8,968**	**15.7**

The Mineral Resource estimate for the BHCP (at a 275ppm CoEq cut-off) detailed by Mineral Resource classification (CoEq = Co + S % × 18.0078 + Ni ppm × 0.2639). Note minor rounding errors may have occurred in compilation of this table.

Ore Reserve

Project	Classification	Tonnes Mt	Co ppm	S %
BHCP (inclusive of Pyrite Hill, Railway & Big Hill)	Proved	–	–	–
	Probable	71.8	710	7.6
Total		**71.8**	**710**	**7.6**

The Measured and Indicated Mineral Resources are inclusive of those Mineral Resources modified to produce the Ore Reserve.

Source: Cobalt Blue Holdings Limited

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Resource & Reserve Development

- 30,000m drilling since 2016 – resource growth reflecting **195% increase in contained Co.**
- Measured and Indicated resources make up approximately 65% of the current Mineral Resource.
- Technical study advancement:
  - July 2017: Scoping Study.
  - July 2018: PFS – Maiden Ore Reserve.
  - July 2020: Project Update – Ore Reserve + Production Target.

Source: Cobalt Blue Holdings Limited

Bruce Blunden

Approvals Manager

ASX: COB

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Government & Approvals

State Significant Development

- Conceptual Planning Development Plan approved in 2020.
- Scoping Report submitted in 2020.
- Secretary's Environmental Assessment Requirements (SEARs) provided by DPIE in 2020, updated in Feb 2022.
- EIS: estimate 1.5 years for EIS development and submission:
  - GHD commence long lead items (e.g., start Aboriginal consultation and field work, ecology, groundwater, soils).
  - Draft Project Description – review and ongoing update.
  - GHD in Broken Hill in July for social impact assessment.
  - NSW Govt agency visit once Demo Plant commissioned, stable operation.

Mining Lease Application submitted

- Mining Lease Application 614.
- Native Title submission provided to Regional NSW for Right to Negotiate Process.

Source: Cobalt Blue Holdings Limited

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Government & Approvals cont..

Land access

- Meeting with BH Local Aboriginal Land Council mid-June – water connection point and EIS
- Assessment of utilities easement

Federal Government

- Critical Minerals Facilitation Office & Future Battery Industries CRC
- Critical Minerals Accelerator Initiative application – announced $15m grant
- CFMO meetings with PwC and Indian delegation
- Seeking briefings with new Cabinet to introduce COB and BHCP

Controlled Allocation

- WAL granted for an additional 100 unit shares (100 ML) groundwater, now 750 unit shares in total

Strong relationship developing with NSW Government (e.g., NSW Critical Minerals Strategy AMEC / MEG boardroom lunch with NSW Critical Minerals operators

- MEG Trade Delegation in July
- Briefings with NSW Ministers for Land & Water, Environment and Regional NSW

Source: Cobalt Blue Holdings Limited

Andrea Roberts

Communications & Engagement Manager

ASX: COB

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On the shoulder of giants

The people of Broken Hill are known for their self-reliance.

They are deeply connected to their heritage and the dramatic desert landscape.

Distinctive mining features and the Line of Lode are reminders that Broken Hill is built on mining.

The mining lifecycle is well-known to locals.

They have a strong community spirit, proven resilience, and are committed to seeing their city grow and prosper.

- Behind the rise of some of the world's largest mining companies – BHP, Rio Tinto, Pasminco.
- Discovered in1883, one of the world's largest silver, lead, and zinc deposits.
- Line of Lode, unique, 130+ yrs in large-scale mining.
- Pop. peaked at 30,000+ (early 60s) – now under 20,000 (after the 70's zinc boom). Can grow to accommodate new mines.
- Trained and influenced generations of miners, engineers, managers, technical staff.
- Behind world-ranking innovations. E.g. froth flotation, recovery of lead and zinc from mine tailings, expanded the life of the mine.

We aim to work with this empowered community and continue Broken Hill's legacy.

Source: Cobalt Blue Holdings Limited

Residential Workforce

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Source: Cobalt Blue Holdings Limited

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Compliance Statements

COB confirms it is not aware of any new information or data that materially affects the information included in the relevant market announcements. In the case of Mineral Resources, Ore Reserves and production targets, all material assumptions and technical parameters underpinning the estimates in the relevant market announcements 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.

The information is extracted from the reports referenced below which are available to view at https://www.cobaltblueholdings.com/.

Forward–looking statements or estimates included in this document are based on assumptions and contingencies which may be inaccurate, and are subject to change without notice, as are statements about market and industry trends, which are based on interpretations of current market conditions. They are provided as a general guide only and should not be relied on as a guarantee of future performance. This report has been prepared by Cobalt Blue and is provided on the basis that none of Cobalt Blue or its respective officers, shareholders, related bodies corporate, partners, affiliates, employees and advisers make any representation or warranty (express or implied) as to the accuracy, reliability, relevance or completeness of the material contained in the Report and nothing contained in the Report is, or may be relied upon as a promise, representation or warranty, whether as to the past or the future. Cobalt Blue hereby exclude all warranties that can be excluded by law.

Slide 9: The production target parameters and forecast financial information derived from the Value Engineering Study are as released on 16 July 2020 in the market announcement titled 'Broken Hill Cobalt Project (BHCP) Project Update 2020'.

Slide 11: The BHCP process flowsheet and production target parameters are as released on 16 July 2020 in the market announcement titled 'Broken Hill Cobalt Project (BHCP) Project Update 2020'.

Slide 12: The forecast financial information derived from the Value Engineering Study and production target (including forecast production parameters) is as released on 16 July 2020 in the market announcement titled 'Broken Hill Cobalt Project (BHCP) Project Update 2020'.

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Compliance Statements

Slide 13: The metallurgical results are as released on 28 April 2020 in the market announcement titled 'Mixed Hydroxide Product (MHP) testwork delivers premium product' and further described in the market announcement released on 16 July 2020 titled 'Broken Hill Cobalt Project (BHCP) Project Update 2020'

Slides 14–15: The metallurgical results are as released on 14 July 2020 in the market announcement titled 'BHCP testwork – High purity cobalt and sulphur products' and further described in the market announcement released on 16 July 2020 titled 'Broken Hill Cobalt Project (BHCP) Project Update 2020'.

Slide 16: The indicative site layout is as released on 16 July 2020 in the market announcement titled 'Broken Hill Cobalt Project (BHCP) Project Update 2020'.

Slides 18–25: The bulk sample extraction and demonstration plant update is as released on 20 June 2022 in the market announcement titled 'Demonstration Plant – Ore Extraction Underway, Commissioning Continues'.

Slide 28: Ore mineralogy is as detailed in the market announcement released 4 July 2019 titled 'Thackaringa Pre-Feasibility Study Announced'.

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Compliance Statements

Slide 29: The Ore Reserve estimate and production target is as released in the market announcement titled 'Broken Hill Cobalt Project (BHCP) Project Update 2020'. The Mineral Resource estimate is as released on 16 September 2021 in the market announcement titled 'BHCP Resource Update'. The Mineral Resource has been reported at a cut-off of 275 ppm cobalt equivalent based on an assessment of material that has reasonable prospects of eventual economic extraction. In addition to cobalt, the revised cut-off grade incorporates revenue streams from elemental sulphur and nickel; economic by-products of the processing pathway defined in the 2018 PFS and subsequent 2020 Project Update. The cobalt equivalent grade has been derived from the following calculation; CoEq ppm = Co ppm + (S ppm × (S price / Co price) × (S recovery / Co recovery)) + (Ni ppm × (Ni price / Co price) × (Ni recovery / Co recovery)). This equates to CoEq = Co + S % × 18.0078 + Ni ppm × 0.2639. The parameters used for this calculation are listed below.

Assumption	Input
Cobalt Price	US$27.50/lb
Sulphur Price	US$145/t
Nickel Price	US$16,000/t
Cobalt Recovery	85%
Sulphur Recovery	64%
Nickel Recovery	85%
Exchange rate (A$ to US$)	0.70

The Company confirms all elements included in the metal equivalence calculation have reasonable potential to be recovered and sold.

Slide 30: The current Mineral Resource estimate is as released on 16 September 2021 in the market announcement titled 'BHCP Resource Update'. The superseded 2016 Mineral Resource estimate, from which the Mineral Resource growth is derived is as released on 31 January 2017 in the Company's 'Replacement Prospectus'.

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Compliance Statements

Slide 32: Information related to the State Significant Development application is as released in the following market announcements:

- 28 January 2020 – 'Broken Hill Cobalt Project – State Significant Development (SSD) Application Commences'
- 19 December 2019 – 'Conceptual Project Development Plan Delivered. State Significant Development approval process to commence.'

Slide 33: Information related to the Critical Minerals Accelerator Initiative application is as released on 28 April 2022 in the market announcement titled 'Broken Hill Cobalt Project awarded $15m Critical Minerals Accelerator Initiative Grant'. Information related to the WAL grant (650 unit shares) is as released on 24 March 2021 in the market announcement titled 'Broken Hill Cobalt Project – Successful Groundwater Allocation'.