Market Update

24 June 2019

Cobalt Blue Holdings Limited

A Green Energy Exploration Company

ASX Code: **COB**

Commodity Exposure:

Cobalt & **Sulphur**

Directors & Management:

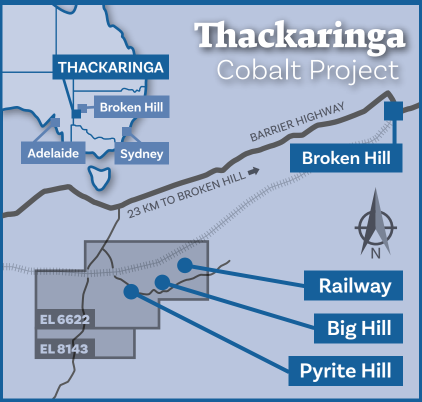
Robert Biancardi	Non-Exec Chairman
Hugh Keller	Non-Exec Director
Robert McDonald	Non-Exec Director
Joe Kaderavek	CEO & Exec Director
Robert Waring	Company Secretary

Capital Structure:

Ordinary Shares at 24/06/2019:	**149.9m**
Options (ASX Code: COBO):	**26.8m**
Market Cap (undiluted):	**$19.5m**

Share Price:

Share Price at 24/06/2019:	**$0.14**



Cobalt Blue Holdings Limited

ACN: 614 466 607
Address: Suite 17.03, 100 Miller Street
North Sydney NSW 2060
Ph: (02) 8287 0660
Website: www.cobaltblueholdings.com
Email: info@cobaltblueholdings.com
Social: Cobalt.Blue.Energy
cobalt-blue-holdings

CobaltBlue
green energy technology

June 2019 – Highlights

Concentrate Circuit (Pilot Trial) program successfully completed

KEY HIGHLIGHTS:

- Completed previously announced pilot-scale production of concentrate from 45 t (wet basis) of ore.
- Achieved 90% recovery of cobalt to concentrate, confirming Pre-Feasibility Study results at 50x larger scale.
- Consistent concentrate circuit performance (as measured by concentrate grade and cobalt recovery) for wide range of feed ore grades. This provides confidence to successfully treat as-mined ore with no ROM blending required.

Introduction

Since the completion of the Pre-Feasibility Study (PFS) in mid-2018, COB has been advancing the metallurgical program for the Broken Hill (Thackaringa) Cobalt Project. As previously announced on 26 February 2019, COB has been treating 45 t (wet basis) of Reverse Circulation (RC) drill chips through a pilot-scale concentrate circuit at ALS Metallurgy, Burnie Tasmania. The Company is pleased to provide this update to the market with the finalised results.

Sample Selection

Samples of ore from Pyrite Hill, Big Hill and Railway were collected during the 2017 drilling campaign and stored in the core-yard at Broken Hill prior to processing. A diagram showing the location of the holes is given in Figure 1 with sample distribution by source summarised in Table 1.

Table 1. **Sample distribution by source deposit.**

Deposit	Sample Mass (%)
Pyrite Hill	14
Big Hill	6
Railway	80

The RC chips were collected at regular 1 m intervals and stored in individual bags during drilling. Using geological logging and a nominal 500 ppm cobalt cut-off, contiguous mineralised sections down each drill hole were selected for the concentrate testwork program. Criteria for sample selection, allowed up to 8 m of continuous dilution

(<500 ppm), resulting in a wide range of cobalt grades being included for testing. In total, there were 1588 individual samples (each representing a 1 m interval of drill hole), covering a range of 31 ppm to 3600 ppm cobalt.

The mass weighted average cobalt grades for the 1588 individual ore samples are shown in Figure 2. The mass weighted average grades of the key metals in the entire feed lot were 1001 ppm Co, 10.54% Fe, and 10.15% S.

Figure 1. **Deposit plan showing the location of drill holes which were the source of material for the metallurgical test work.**

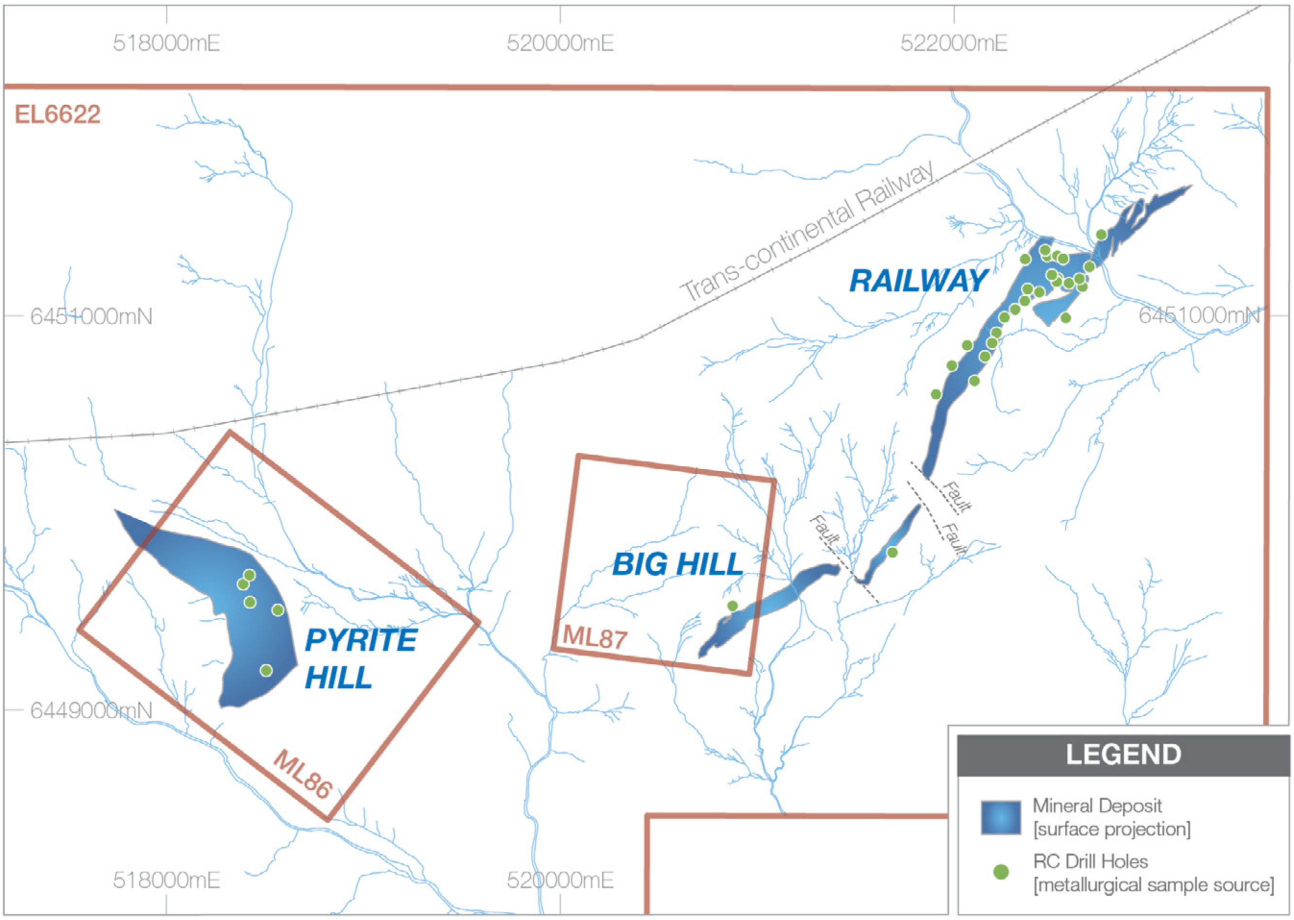
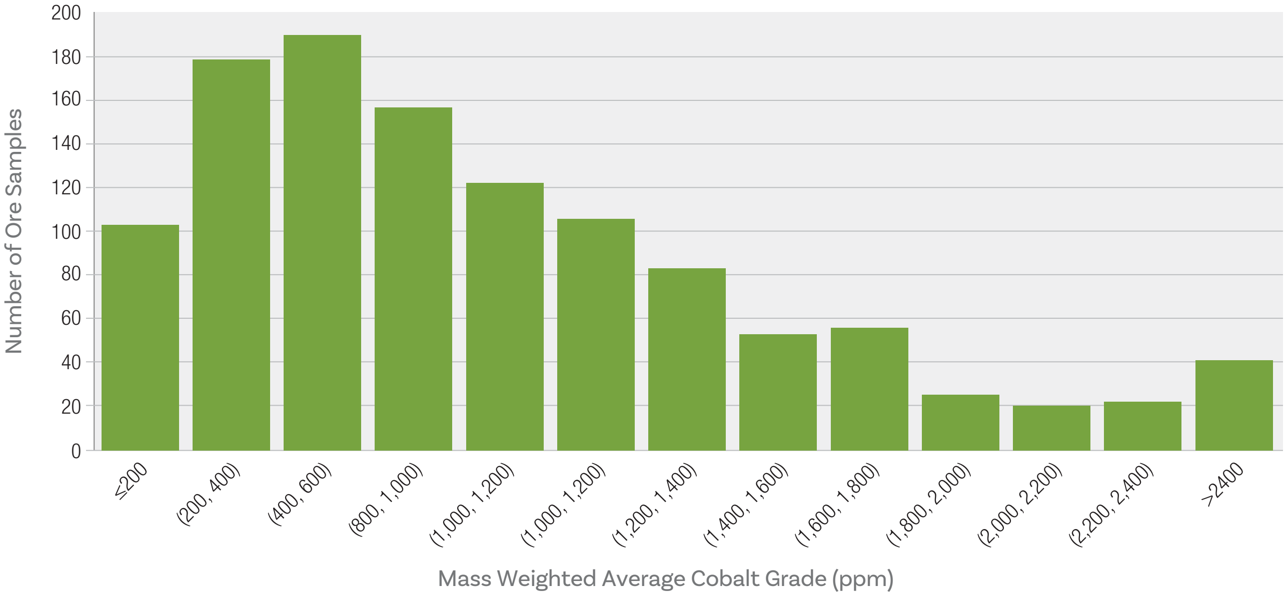


Figure 2. **Mass Weighted Average Cobalt Grades per 1 m drill core interval samples.**



Concentrate flowsheet

As part of the 2017 Scoping Study and 2018 PFS, COB developed a simple circuit for upgrading the ore into a pyrite-concentrate prior to refining. The key driver for the circuit selection, was to take advantage of the large (coarse) grained pyrite, and thereby minimise crushing and milling costs.

After extensive mineralogical characterisation, and bench-scale evaluation of different concentrate methods, a combined gravity-flotation circuit was selected. The ore was crushed/milled to 1 mm topsize, and passed across gravity spirals, to produce a gravity concentrate. The gravity rejects were size-classified, and the fine fraction (nominally <125 um) sent to a flotation circuit for scavenging the remaining cobalt-pyrite.

In the current pilot-scale program, the circuit has now been shown to be robust, with successful concentration of variable ore grades. Furthermore, the combination of two techniques – gravity and flotation, provides an effective method for treating ore samples which vary in particle size distribution. These are two common hurdles for reliable concentrator operations.

Pilot-scale results

The overall results from the pilot-scale program are shown in Figure 3. The program was conducted over a 6 month period by ALS Metallurgy Burnie Tasmania. Photos of the spiral and float cells are shown in Figure 4. The 1 m ore intervals were randomly mixed, to provide head samples to the gravity circuit. Each unit operation of the pilot circuit was tested on a daily-campaign basis, and the number of feed batches is given in Table 1.

Figure 3. **Overall deportment of cobalt, cobalt grade, and mass through the pilot-scale concentrate circuit.**

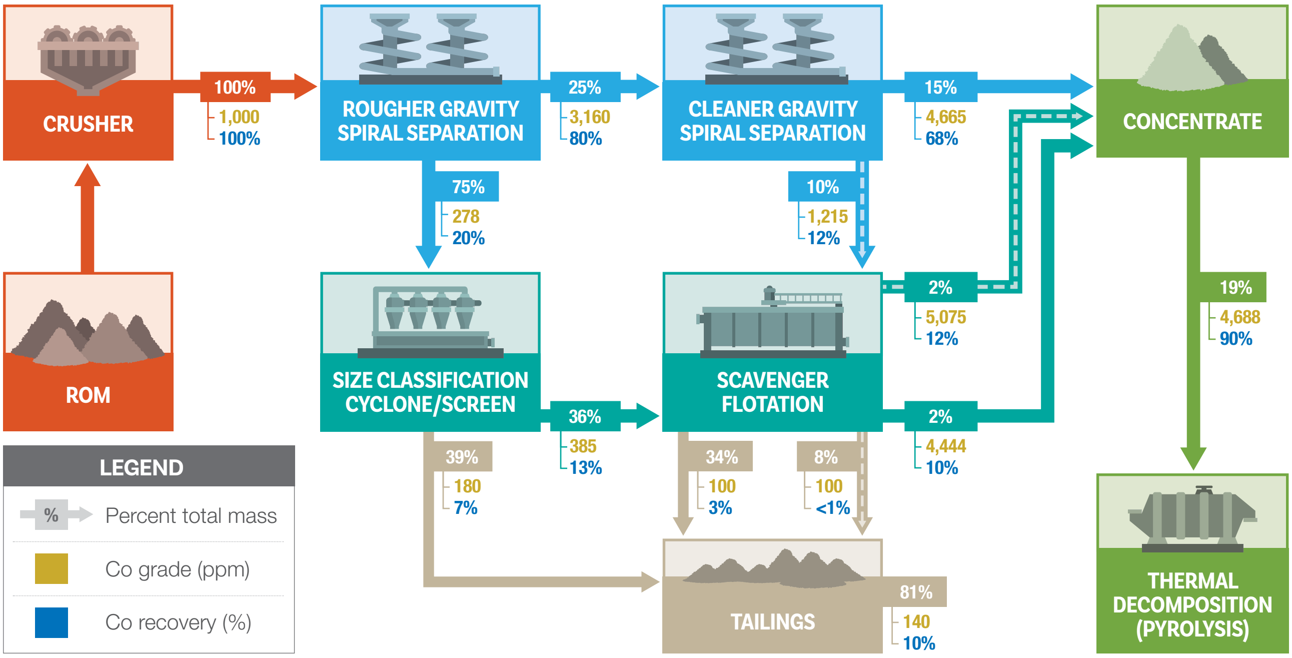


Figure 4. **Operating rougher spiral (LHS) and cleaner spiral (RHS), with 'heavy' pyrite concentrate being separated from 'light' feldspar/silica gangue.**

Figure 5. **Operating float cell, with pyrite collected in the froth at the top of the cell.**

Figure 6. **Photos of coarse tails accumulating in bulka bag (LHS), wet concentrate stored under water in plastic drum (RHS).**

Table 2. **Summary of campaigns and feed batch sizes.**

Deposit	Number	Batch size
Samples	1588	1m intervals typically 25–30 kg per sample
Rougher Gravity Circuit	115	average 325–375 kg per feed lot
Cleaner Gravity Circuit	30	average 325–375 kg per feed lot
Size-Classification of Rougher Gravity Rejects	60	average 500–550 kg per feed lot
Flotation of Fines from Rougher Gravity Rejects	60	average 250–275 kg per feed lot
Flotation of Cleaner Gravity Rejects	8	average 500–550 kg per feed lot

Key results

- The overall recovery of cobalt was 90%, in-line with the PFS testwork results.
- Cobalt grades in the gravity and flotation concentrates were remarkably similar, ranging from 4444 ppm to 5075 ppm. This confirmed that the cobalt content in the host pyrite mineral was consistent across the range of ore grade samples. Variations are likely due to differences in liberation of pyrite grains from the gangue feldspar/silicates.
- Tailings rejects typically graded 100–180 ppm Co, which was close to the analysis detection limit of 100 ppm Co (XRF method was used). Sub-samples have been sent for characterisation of acid-forming properties (Bureau Veritas Adelaide), and other sub-samples are now being evaluated for incorporation into overall mine waste rock and process plant tailings management studies (ATC Williams).
- Optimisation of the classification step, and the possible inclusion of a regrind unit operation, may lead to improved cobalt recoveries. This will be considered in future testwork programs.

Implications

COB is encouraged by the positive results achieved, when upscaling the quantity of material by 50x to the pilot trial. The successful use of commercial-sized spirals bodes well for commercial implementation of the circuit.

The simplicity of the circuit equipment, and the robustness to account for low-average-high grade ore and variable particle size distributions, provides a strong foundation for the process plant operations.

The ability to upgrade the ore by concentration, while retaining ~90% of the cobalt and rejecting ~80% of the feed ore to tails, significantly reduces the capital and operating costs for a refinery.

Next steps

COB is currently preparing detailed plans for continued pilot testing of the flowsheet. This will include the following steps:

- During 2H 2019, the 7–8 t of concentrate produced from the pilot-trial, will be progressed through a pilot-scale furnace operated by ANSAC in Bunbury.
- Plans are being prepared for a second concentrate trial, utilising the remaining 40–45 t of mineralised material stored at Broken Hill. This will focus on seeking improved recoveries via process optimisations.
- Engineering design work will now commence to update the PFS costings for the concentrate circuit.
- Geo-metallurgical studies will now commence, with a focus on linking in-ground ore characteristics to extractive mining techniques (blasting, load and haul), and crushing/milling requirements.

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 strategic 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: (02) 8287 0660

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

- 04 April 2019: Significant Thackaringa Resource Upgrade
- 26 February 2019: Positive Large Scale Testwork Results
- 5 February 2019: Drilling Campaign Update
- 16 January 2019: Drilling Campaign Paused. Technical Work Programs Continue
- 05 December 2018: Thackaringa Cobalt Project Drilling and Water Supply Update
- 01 November 2018: Thackaringa Feasibility Study Drilling Campaign Commences
- 04 July 2018: Thackaringa Pre Feasibility Study Announced

Competent Person's Statement

The information in this report that relates to Metallurgical Testwork Results or Engineering Design Studies is based on information compiled by Dr Andrew Tong, a Competent Person who is a Member of The Australasian Institute of Mining and Metallurgy. Dr Andrew Tong is engaged by Cobalt Blue Holdings as Executive Manager. Dr Andrew Tong has sufficient experience that is relevant to the style of mineralisation and type of deposit under consideration and to the activity being undertaken to qualify as a Competent Person as defined in the 2012 JORC Code. Dr Andrew Tong consents to the inclusion in the report of the matters based on his information in the form and context in which they appear.

Notes

The Pre-Feasibility Study was released to ASX in an announcement titled 'Thackaringa Cobalt Project Pre-Feasibility Study' on 4 July 2018. The estimates of mineral resources were first announced by Cobalt Blue Holdings Limited in 'Thackaringa – Significant Mineral Resource upgrade' on 19 Mar 2018 and then in 'Significant Thackaringa Resource Upgrade' released on 4 April 2019. The Company confirms that it is not aware of any new information or data that materially affects the information included in those announcements, and all material assumptions and technical parameters underpinning the estimates in those announcements continue to apply and have not materially changed.

Appendix 1 – JORC Code, 2012 Edition – Table 1

Section 1 – Sampling Techniques and Data
(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary

Sampling techniques	- *Nature and quality of sampling (eg cut channels, random chips, or specific specialised industry standard measurement tools appropriate to the minerals under investigation, such as down hole gamma sondes, or handheld XRF instruments, etc). These examples should not be taken as limiting the broad meaning of sampling.*
	- *Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.*
	- *Aspects of the determination of mineralisation that are Material to the Public Report.*
	- *In cases where 'industry standard' work has been done this would be relatively simple (eg 'reverse circulation drilling was used to obtain 1 m samples from which 3 kg was pulverised to produce a 30 g charge for fire assay'). In other cases more explanation may be required, such as where there is coarse gold that has inherent sampling problems. Unusual commodities or mineralisation types (eg submarine nodules) may warrant disclosure of detailed information.*
		Diamond Drilling
		Pre-1990
		- Diamond drilling was used to obtain core from which irregular intervals, reflecting visual mineralisation and geological logging were hand-split or sawn. Samples were submitted for analysis using a mixed acid digestion and AAS methodology.
		Post-1990
		- Diamond drilling was used to obtain core from which irregular intervals, reflecting visual mineralisation and geological logging were sawn (quarter core for HQ). Samples were submitted for analysis using a mixed acid digestion and ICP-OES methodology.
		2016–2019
		- Diamond drilling was used to obtain core from which irregular intervals were sawn with:
		  - one quarter - one half core dispatched for assay by mixed acid digestion and analysis via ICP-MS + ICP-AES reporting a suite of 48 elements (sulphur >10% by LECO);
		  - the remaining sample (core) was retained for future metallurgical test work and archival purposes.
		Reverse Circulation ('RC') Drilling
		Pre-2017
		- RC drilling was used to obtain a representative sample by means of riffle splitting with samples submitted for analysis using the above-mentioned methodologies.
		- Pre-2000 drill samples were assayed for a small and variable suite of elements (sometimes only cobalt). The post-2000 drill samples are all assayed by ICP-MS for a suite of 33 elements.
		2017–2019
		- RC drilling was used to obtain a representative sample by means of a cone or riffle splitter with samples submitted for assay by mixed acid digestion and analysis via ICP-MS + ICP-AES reporting a suite of 48 elements (sulphur >10% by LECO).

Drilling techniques	- *Drill type (eg core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (eg core diameter, triple or standard tube, depth of diamond tails, face-sampling bit or other type, whether core is oriented and if so, by what method, etc).*	- The Thackaringa drilling database comprises a total of 68 diamond drill holes, 184 reverse circulation (RC)/percussion drill holes and 21 diamond drill holes with RC/percussion pre-collars of varying depths. Diamond drilling was predominantly completed with standard diameter, conventional HQ and NQ with historical holes typically utilising RC and percussion pre-collars to an average 25 metres (see Drill hole Information for further details). Early (1960-1970) drill holes utilised HX – AX diameters dependent on drilling depth. Reverse circulation drilling utilised standard hole diameters (4.8"-5.5") with a face sampling hammer. - Since 2013 all diamond drilling has been completed using a triple tube system with an NQ3 - HQ3 diameter. Drill holes were typically drilled at angles between 40 and 60 degrees from horizontal and the resulting core was oriented as part of the logging process.

Criteria	JORC Code Explanation	Commentary

Drilling techniques *(continued)*

Year	No. Diamond Holes	No. RC/Percussion Holes	No. RCDD/PDDH Holes	Total
1967	1	–	–	1
1970	4	–	–	4
1980	2	1	16	19
1993	–	–	2	2
1998	–	11	–	11
2011	–	11	–	11
2012	–	20	–	20
2013	1	–	–	1
2016	8	–	–	8
2017	30	93	3	126
2018	18	42	–	60
2019	4	6	–	10
Total	**68**	**184**	**21**	**273**

Year	No. Diamond Metres	No. RC/Percussion Metres	Total Metres
1967	304.2	–	304.2
1970	496.6	–	496.6
1980	1,302.85	408.38	1,711.23
1993	178	72	250
1998	–	1,093.25	1,093.25
2011	–	1811	1811
2012	–	2,874.25	2,874.25
2013	349.2	–	349.2
2016	1,511.8	–	1,511.8
2017	4,370	14,563	18,933
2018	1919.2	6,314	8,233.2
2019	418	904	1,322
Total	**10,849.85**	**28,039.88**	**38,889.73**

Drill sample recovery

- *Method of recording and assessing core and chip sample recoveries and results assessed.*
- *Measures taken to maximise sample recovery and ensure representative nature of the samples.*
- *Whether a relationship exists between sample recovery and grade and whether sample bias may have occurred due to preferential loss/gain of fine/coarse material.*

Diamond Drilling

- Historical core recoveries were accurately quantified through measurement of actual core recovered versus drilled intervals with drilling utilising conventional drilling techniques.
- From 2013, a triple-tube system was used to maximise sample recovery as summarised below:

Diamond Drilling Campaign	Core Recovery
2013	99.7%
2016	98%
2017	96.7%
2018 - 19	97.7%

- No relationship between sample recovery and grade has been observed.

<table>
<thead>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
</thead>
<tbody>
<tr>
<td>Drill sample recovery <i>(continued)</i></td>
<td></td>
<td>
Reverse Circulation (‘RC’) Drilling

Reverse circulation sample recoveries were visually estimated during drilling programs. Where the estimated sample recovery was below 100% this was recorded in field logs by means of qualitative observation.
Reverse circulation drilling employed sufficient air (using a compressor and booster) to maximise sample recovery.
No relationship between sample recovery and grade has been observed.

</td>
</tr>
<tr>
<td>Logging</td>
<td>

<i>Whether core and chip samples have been geologically and geotechnically logged to a level of detail to support appropriate Mineral Resource estimation, mining studies and metallurgical studies.</i>
<i>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</i>
<i>The total length and percentage of the relevant intersections logged.</i>

</td>
<td>

A qualified geoscientist has logged all reported drill holes in their entirety. This logging has been completed to a level of detail considered to accurately support Mineral Resource estimation and metallurgical studies. The parameters logged include lithology, alteration, mineralisation and oxidation. These parameters are both qualitative and quantitative in nature.
Diamond drilling completed during 2016–2018 has been subject to geotechnical logging with parameters recorded including rock-quality designation (RQD), fracture frequency and hardness.
During 2013, a considerable amount of historical drilling was re-logged through review of available core stored at Broken Hill as well the re-interpretation of historical reports where core or percussion samples no longer exist. A total of eight (8) diamond drill holes and sixteen (16) diamond drill holes with pre-collars were re-logged as detailed below:

<table>
<thead>
<tr><th>Hole ID</th><th>Deposit</th><th>Max Depth (m)</th><th>Hole Type</th><th>Pre-Collar Depth (m)</th></tr>
</thead>
<tbody>
<tr><td>67TH01</td><td>Pyrite Hill</td><td>304.2</td><td>DDH</td><td>–</td></tr>
<tr><td>70BH01</td><td>Big Hill</td><td>102.7</td><td>DDH</td><td>–</td></tr>
<tr><td>70BH02</td><td>Big Hill</td><td>103.9</td><td>DDH</td><td>–</td></tr>
<tr><td>70TH02</td><td>Pyrite Hill</td><td>148.6</td><td>DDH</td><td>–</td></tr>
<tr><td>70TH03</td><td>Pyrite Hill</td><td>141.4</td><td>DDH</td><td>–</td></tr>
<tr><td>80BGH05</td><td>Big Hill</td><td>54.86</td><td>PDDH</td><td>45.5</td></tr>
<tr><td>80BGH06</td><td>Big Hill</td><td>68.04</td><td>PDDH</td><td>58</td></tr>
<tr><td>80BGH08</td><td>Big Hill</td><td>79.7</td><td>PDDH</td><td>69.9</td></tr>
<tr><td>80BGH09</td><td>Big Hill</td><td>100.5</td><td>PDDH</td><td>–</td></tr>
<tr><td>80PYH01</td><td>Pyrite Hill</td><td>24.53</td><td>PDDH</td><td>6</td></tr>
<tr><td>80PYH02</td><td>Pyrite Hill</td><td>51.3</td><td>PDDH</td><td>33.58</td></tr>
<tr><td>80PYH04</td><td>Pyrite Hill</td><td>55</td><td>PDDH</td><td>38.7</td></tr>
<tr><td>80PYH05</td><td>Pyrite Hill</td><td>93.6</td><td>PDDH</td><td>18</td></tr>
<tr><td>80PYH06</td><td>Pyrite Hill</td><td>85.5</td><td>PDDH</td><td>18</td></tr>
<tr><td>80PYH07</td><td>Pyrite Hill</td><td>94.5</td><td>PDDH</td><td>12</td></tr>
<tr><td>80PYH08</td><td>Pyrite Hill</td><td>110</td><td>PDDH</td><td>8</td></tr>
<tr><td>80PYH09</td><td>Pyrite Hill</td><td>100.5</td><td>PDDH</td><td>8</td></tr>
<tr><td>80PYH10</td><td>Pyrite Hill</td><td>145.3</td><td>PDDH</td><td>25.5</td></tr>
<tr><td>80PYH11</td><td>Pyrite Hill</td><td>103.1</td><td>PDDH</td><td>18</td></tr>
<tr><td>80PYH12</td><td>Pyrite Hill</td><td>109.5</td><td>PDDH</td><td>4.2</td></tr>
<tr><td>80PYH13</td><td>Pyrite Hill</td><td>77</td><td>DDH</td><td>–</td></tr>
<tr><td>80PYH14</td><td>Pyrite Hill</td><td>300.3</td><td>DDH</td><td>–</td></tr>
<tr><td>93MGM01</td><td>Pyrite Hill</td><td>70</td><td>PDDH</td><td>24</td></tr>
<tr><td>93MGM02</td><td>Pyrite Hill</td><td>180</td><td>PDDH</td><td>48</td></tr>
</tbody>
</table>
<i>DDH Diamond drill hole PDDH Diamond drill hole with percussion pre-collar</i>

Litho-geochemistry has been used to verify geological logging where available for drilling completed post 2010.
Representative reference trays of chips from reverse circulation drilling completed post 2010 have been retained.

</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
</thead>
<tbody>
<tr>
<td>Sub-sampling techniques and sample preparation</td>
<td>
- If core, whether cut or sawn and whether quarter, half or all core taken.
- If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.
- For all sample types, the nature, quality and appropriateness of the sample preparation technique.
- Quality control procedures adopted for all sub-sampling stages to maximise representivity of samples.
- Measures taken to ensure that the sampling is representative of the in situ material collected, including for instance results for field duplicate/ second-half sampling.
- Whether sample sizes are appropriate to the grain size of the material being sampled.
</td>
<td>
Diamond Drilling
Pre-1990
- Core samples were hand-split or sawn with re-logging of available historical core (see Logging) indicating a 70:30 (retained : assayed) split was typical. The variation of sample ratios noted are considered consistent with the sub-sampling technique (hand-splitting).
- No second half samples were submitted for analysis.
- It is considered water used for core cutting is unprocessed and unlikely to have introduced sample contamination.
- Procedures relating to the definition of the line of cutting or splitting are not available. It is expected that ‘standard industry practice’ for the period was applied to maximize sample representivity.
Post-1990
- NQ drilling core was sawn with half core submitted for assay.
- HQ drilling core was sawn with quarter core submitted for assay.
- No second half samples were submitted for analysis.
- It is considered water used for core cutting is unprocessed and unlikely to have introduced sample contamination.
- Procedures relating to the definition of the line of cutting or splitting are not available. It is expected that ‘standard industry practice’ for the period was applied to maximise sample representivity.
2016–2019
- All NQ – HQ drill core was sawn:
  - one quarter – one half core was submitted for assay.
  - one quarter – three quarter core was retained for archive and further metallurgical test work.
- It is considered that the water used for core cutting is most unlikely to have introduced sample contamination.
- Sample sawing and processing for test work were undertaken according to ‘standard industry practice’ to maximise sample representivity.
Reverse Circulation (‘RC’) Drilling
Pre-2017
- Sub-sampling of reverse circulation chips is expected to have been ‘standard industry practice’ for the period.
- Field duplicates were collected during completion of the 2011–2012 reverse circulation drilling at an average rate of 1:40 samples for a total of 117 duplicate pairs. These were obtained by spearing the remnant bulk sample following collection of the primary split. Where samples were notably wet, duplicates samples were grabbed by hand.
<table>
<thead>
<tr><th>Co Cut-Off</th><th>Sample Count</th><th>Cobalt MPD</th><th>Sulphur MPD</th><th>Iron MPD</th></tr>
</thead>
<tbody>
<tr><td>All</td><td>117</td><td>15%</td><td>17%</td><td>10%</td></tr>
<tr><td>500 ppm</td><td>32</td><td>10%</td><td>10%</td><td>8%</td></tr>
</tbody>
</table>
2017
- During reverse circulation drilling completed in 2017, duplicate samples were collected at the time of drilling at an average rate of 1:23 samples. These were obtained by riffle splitting the remnant bulk sample following collection of the primary split.
- Assay results include analysis of 630 field duplicate pairs from 96 RC and 3 RCDDH drill holes.
</td>
</tr>
</tbody>
</table>

Criteria	JORC Code Explanation	Commentary

Sub-sampling techniques and sample preparation *(continued)*

- A measure of the average precision of the sampling, sample preparation and assaying methods, given by the mean per cent difference (MPD) assay values of the duplicate pairs is summarised below. Overall, the sampling and assay precision for Co, Fe and S at economically significant grades is regarded as reasonable.

Co Cut-Off	Sample Count	Cobalt MPD	Sulphur MPD	Iron MPD
All	630	12%	14%	8%
500 ppm	170	10%	10%	7%

2018–2019

- During reverse circulation drilling completed in 2018 - 2019, duplicate samples were collected at the time of drilling at an average rate of 1:18 samples. These were obtained in parallel with collection of the primary split by means of a cone splitter.
- Assay results include analysis of 398 field duplicate pairs from 48 RC drill holes.
- A measure of the average precision of the sampling, sample preparation and assaying methods, given by the mean per cent difference (MPD) assay values of the duplicate pairs is summarised below. Overall, the sampling and assay precision for Co, Fe and S at economically significant grades is regarded as reasonable.

Co Cut-Off	Sample Count	Cobalt MPD	Sulphur MPD	Iron MPD
All	398	11%	13%	7%
500 ppm	87	10%	10%	8%

Quality of assay data and laboratory tests

- *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.*
- *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.*
- *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*

- The nature and quality of all assaying and laboratory procedures employed for samples obtained through drilling (diamond and reverse circulation) are considered 'industry standard' for the respective periods.
- The assay techniques employed for drilling (diamond and reverse circulation) include mixed acid digestion with ICP-OES, ICP-AES, ICP-MS and AAS finishes. These methods are considered appropriate for the targeted mineralisation and regarded as a 'near total' digestion technique with resistive phases not expected to affect cobalt analysis.
- All samples have been processed at independent commercial laboratories including AMDEL, Australian Laboratory Services (ALS), Analabs and Genalysis.

2011–2012

- All samples from drilling completed during 2011–2012 were assayed at ALS in Orange, New South Wales. All samples from drilling completed during 2016-2019 were processed at ALS Adelaide, South Australia. ALS is a NATA Accredited Laboratory and qualifies for JAS/ANZ ISO9001:2008 quality systems. ALS also maintains internal QAQC procedures (including analysis of standards, repeats and blanks).

2016–2017

- To monitor the accuracy of assay results from the 2016–2017 Thackaringa drilling, CRM standards were included in the assay sample stream at an average rate of 1:24. The CRM samples were purchased from Ore Research & Exploration Pty Ltd with results summarised below:

Criteria | **Commentary**

Quality of assay data and laboratory tests *(continued)*

		Cobalt				Sulphur				Iron			
Standard ID	**Count**	**1SD**	**2SD**	**3SD**	**+3SD**	**1SD**	**2SD**	**3SD**	**+3SD**	**1SD**	**2SD**	**3SD**	**+3SD**
OREAS523 (728 ppm Co)	72	59	12	1	–	61	11	–	–	53	18	1	–
OREAS521 (386 ppm Co)	61	49	10	1	1	50	10	1	–	53	7	1	–
OREAS166 (1970 ppm Co)	128	103	24	–	1	19	22	19	68	67	7	52	2
OREAS165 (2445 ppm Co)	120	102	17	–	1	15	36	38	31	74	38	7	1
OREAS163 (230 ppm Co)	140	110	25	4	1	4	6	14	116	23	91	24	2
OREAS162 (631 ppm Co)	152	114	33	5	–	32	41	33	46	108	37	7	–
OREAS160 (2.8 ppm Co)	121	104	10	2	5	40	49	30	2	83	–	–	38

- Internal lab standards were routinely included by ALS Laboratories during the 2017 drilling program. The Thackaringa drilling database includes the lab standards for all drilling completed from October 2017 at an average rate of 1:6 samples.

		Cobalt				Sulphur				Iron			
Standard ID	**Count**	**1SD**	**2SD**	**3SD**	**+3SD**	**1SD**	**2SD**	**3SD**	**+3SD**	**1SD**	**2SD**	**3SD**	**+3SD**
OREAS902 (926 ppm Co)	125	39	51	28	7	86	31	8	–	114	11	–	–
OREAS601 (5.14 ppm Co)	220	199	15	4	2	182	35	3	–	197	23	–	–
OREAS24b (16.9 ppm Co)	439	288	142	8	1	382	27	30	–	282	123	31	3
OGGeo08 (100 ppm Co)	219	152	63	4	–	202	17	–	–	208	11	–	–
MRGeo08 (19.5 ppm Co)	222	172	47	2	1	18	52	99	53	144	78	–	–
GBM915-8 (1082 ppm Co)	127	110	17	–	–	–	–	–	–	–	–	–	–
GBM908-10 (27 ppm Co)	223	222	–	1	–	–	–	–	–	–	–	–	–

- Lab repeats were routinely completed by ALS Laboratories during the 2017 drilling program. The Thackaringa drilling database includes the repeat assays for all drilling completed from October 2017 at an average rate of 1:16 samples for a total of 715 repeat pairs. A measure of the average precision of the sampling, sample preparation and assaying methods, given by the mean per cent difference (MPD) assay values of lab repeats is summarised below.
- Overall, the sampling and assay precision for Co, Fe and S at economically significant grades is regarded as reasonable.

Co Cut-Off	Sample Count	Cobalt MPD	Sulphur MPD	Iron MPD
All	715 (637)[1]	3%	3%	2%
500 ppm	179 (102)[1]	2%	2%	2%

[1] *Sulphur analysis for lab repeats were, in part, affected by the upper detection limits (10%) of the assay technique. These results have been excluded from the above analysis.*

2018–2019

- To monitor the accuracy of assay results from the 2018 – 2019 Thackaringa drilling, CRM standards were included in the assay sample stream at an average rate of 1:19. The CRM samples were purchased from Ore Research & Exploration Pty Ltd with results summarised below:

Criteria	Commentary

Quality of assay data and laboratory tests *(continued)*

Standard ID	Count	Cobalt				Sulphur				Iron			
		1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD
OREAS523 (728 ppm Co)	65	43	20	1	1	49	14	1	1	51	13	-	1
OREAS521 (386 ppm Co)	67	53	13	1	-	64	3	-	-	55	12	-	-
OREAS166 (1970 ppm Co)	79	64	15	-	-	1	5	1	721	16	22	15	26
OREAS165 (2445 ppm Co)	81	74	6	1	-	47	33	-	1	15	26	28	12
OREAS163 (230 ppm Co)	63	52	11	-	-	12	41	9	1	14	25	19	5
OREAS162 (631 ppm Co)	49	42	7	-	-	31	16	2	-	12	12	9	16
OREAS160 (2.8 ppm Co)	58	52	3	2	1	45	-	-	13	32	21	3	2

- Internal lab standards were routinely included by ALS Laboratories during the 2018–2019 drilling program at an average rate of 1:5 samples.

Standard ID	Count	Cobalt				Sulphur				Iron			
		1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD
OREAS 76a	6					6	–	–	–				
OREAS 905 (14.8 ppm Co)	162	123	37	2	–	132	–	23	7	137	24	1	–
OREAS 902 (926 ppm Co)	160	62	55	29	14	91	54	15	–	128	32	–	–
OREAS 601 (5.14 ppm Co)	17	14	2	–	1	11	6	–	–	17	–	–	–
OREAS 24b (16.9 ppm Co)	374	250	120	4	–	327	12	31	4	241	117	16	–
OGGeo08 (100 ppm Co)	183	65	90	28	–	164	19	–	–	172	11	–	–
MRGeo08 (19.5 ppm Co)	198	152	40	5	1	6	46	77	69	116	81	1	–
GS910-4	72					72	–	–	–				
GS310-8	54					54	–	–	–				
GS303-2	171					170	1	–	–				
GBM915-8 (1083 ppm Co)	147	130	15	2	–								
GBM908-10 (27 ppm Co)	198	197	1	–	–								
CCU-1e	36					6	4	12	14				

- Lab repeats were routinely completed by ALS Laboratories during the 2018 - 2019 drilling program at an average rate of 1:19 samples for a total of 468 repeat pairs. A measure of the average precision of the sampling, sample preparation and assaying methods, given by the mean per cent difference (MPD) assay values of lab repeats is summarised below.
- Overall, the sampling and assay precision for Co, Fe and S at economically significant grades is regarded as reasonable.

Co Cut-Off	Sample Count	Cobalt MPD	Sulphur MPD	Iron MPD
All	468 (403)[1]	3%	4%	2%
500 ppm	104 (39)[1]	2%	2%	2%

[1] *Sulphur analysis for lab repeats were, in part, affected by the upper detection limits (10%) of the assay technique. These results have been excluded from the above analysis.*

Criteria	JORC Code Explanation	Commentary
Verification of sampling and assaying	*The verification of significant intersections by either independent or alternative company personnel.* *The use of twinned holes.* *Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.* *Discuss any adjustment to assay data.*	Historical drilling intersections were internally verified by personnel employed by previous explorers including CRAE Pty Limited, Central Austin Pty Limited and Hunter Resources. Broken Hill Prospecting completed a systematic review of the related data. The Thackaringa drilling database exists in electronic form under the independent management of Maxwell GeoServices. The Maxwell Data Schema (MDS) strictly applies integrity rules to all downhole and measurement recordings. If data fails the integrity rules, the data is not loaded into the database. The MDS stores every instance (record) of data loading and data modification inclusive of who loaded and modified that data. Historical drilling data available in electronic form has been re-formatted and imported into the drilling database. Quantitative historical drilling data, including assays, have been captured electronically during systematic data compilation and validation completed by Broken Hill Prospecting. Samples returning assays below detection limits are assigned half detection limit values in the database. All significant intersections are verified by the Company's Exploration Manager and an alternative Company representative. No drill holes were twinned during the 2018 – 19 drilling program.
Location of data points	*Accuracy and quality of surveys used to locate drill holes (collar and down-hole surveys), trenches, mine workings and other locations used in Mineral Resource estimation.* *Specification of the grid system used.* *Quality and adequacy of topographic control.*	Historical drill collars have been relocated and surveyed using a differential GPS (DGPS). In the instances where no collar could be located the position has been derived from georeferenced historical plans. Down hole surveys using digital cameras were completed on all drilling post 2000. Down hole surveys for some earlier drilling were estimated from hole trace and section data where raw survey data was not reported. All 2016–2019 drill hole collars were located and surveyed with DGPS by an independent surveyor with reported accuracy of ±0.05m in horizontal and vertical measurement. Downhole surveys using digital cameras were completed for all 2016–2019 drill-holes. All data is recorded in the GDA94 datum; UTM Zone 54 (MGA54). 3D validation of drilling data has been completed to support detailed geological modelling in Micromine™ software. The quality of topographic control is deemed adequate for the purposes of the Mineral Resource estimate.
Data spacing and distribution	*Data spacing for reporting of Exploration Results.* *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.* *Whether sample compositing has been applied.*	The data density of existing drill holes at Thackaringa has been materially increased by the 2016–2018 drilling programs. Drilling density at each deposit varies along strike generally responsive to exploration targeting and interpreted geological complexity with the average drill line spacing for each deposit summarised below: Railway: 25 – 40m Pyrite Hill: 30 – 40m Big Hill: 40 – 60m Detailed geological mapping is supported by drill-hole data of sufficient spacing and distribution to complete a 3D geological modelling and Mineral Resource estimation No sample compositing has been applied to reported intersections.

Criteria	JORC Code Explanation	Commentary
Orientation of data in relation to geological structure	- *Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.* - *If the relationship between the drilling orientation and the orientation of key mineralised structures is considered to have introduced a sampling bias, this should be assessed and reported if material.*	- Drill holes at the Thackaringa project are typically angled at -55˚ or -60˚ to the horizontal and drilled perpendicular to the mineralised trend. - Drilling orientations are adjusted along strike to accommodate folded geological sequences. - Mineralisation at the Big Hill and Railway prospects is steeply dipping and consequently mineralised intersections will be greater than true width. At Pyrite Hill mineralisation is gently dipping and mineralised intersections will be close to true width. - The drilling orientation is not considered to have introduced a sampling bias on assessment of the current geological interpretation.
Sample security	- *The measures taken to ensure sample security.*	- Sample security procedures are considered to be 'industry standard' for the respective periods - Samples obtained during drilling completed between 2016 – 2019 were transported by an independent courier directly from Broken Hill to ALS, Adelaide. - The Company considers that risks associated with sample security are limited given the nature of the targeted mineralisation.

Audits or reviews	- *The results of any audits or reviews of sampling techniques and data.*	- In late 2016 an independent validation of the Thackaringa drilling database was completed:
		  - The data validation process consisted of systematic review of drilling data (collars, assays and surveys) for identification of transcription errors.
		  - Following review, historical drill hole locations were also validated against georeferenced historical maps to confirm their location.
		  - Three (3) drill holes at Big Hill were found to be incorrectly located. One collar was located and surveyed by GPS and two were digitised from georeferenced historical plans (reported to the nearest metre) as the collars had been destroyed. These corrections were captured in the Big Hill Mineral Resource estimate.
		  - Total depths for all holes were checked against original reports.
		  - Final 3D validation of drilling data has been completed by independent geological consultants to support detailed geological modelling in Micromine™ software.
		- Audits and reviews of QAQC results and procedures are further described in preceding sections of this table including **Quality of assay data and laboratory tests, Sub-sampling techniques and sample preparation** and **Logging.**

Section 2 – Reporting of Exploration Results

<table>
<tr><th>Criteria</th><th>JORC Code Explanation</th><th>Commentary</th></tr>
<tr><td>Mineral tenement and land tenure status</td><td><i>Type, reference name/number, location and ownership including agreements or material issues with third parties such as joint ventures, partnerships, overriding royalties, native title interests, historical sites, wilderness or national park and environmental settings.</i>
<i>The security of the tenure held at the time of reporting along with any known impediments to obtaining a licence to operate in the area.</i></td><td>The Thackaringa Cobalt project is located approximately 25 kilometres west-southwest of Broken Hill and comprises two exploration (EL) and two mining leases (ML) including:
<table>
<tr><th>Tenement</th><th>Grant Date</th><th>Expiry Date</th></tr>
<tr><td>EL6622</td><td>30/08/2006</td><td>30/08/2020</td></tr>
<tr><td>EL8143</td><td>26/07/2013</td><td>26/07/2020</td></tr>
<tr><td>ML86</td><td>05/11/1975</td><td>05/11/2022</td></tr>
<tr><td>ML87</td><td>05/11/1975</td><td>05/11/2022</td></tr>
</table>
The project is subject to a joint venture agreement between COB and Broken Hill Prospecting Limited (ASX: BPL). COB announced on 18 February 2019 that following a recalculation of Joint Venture Interests, BPL had been advised that its Joint Venture interest had fallen to below 5%, the Minimum Interest specified in the joint venture agreement. As a result of BPL's interest falling below the Minimum Interest, BPL was deemed to have withdrawn from the Joint Venture. COB issued to BPL a notice requesting it to surrender absolutely all of its Joint Venture Interest to COB. BPL announced on 26 February 2019 that they rejected COB's claims and initiated a Dispute Notice in regard to the matter. The dispute has yet to be resolved. COB believes it has a 100% beneficial interest in the tenements below:
EL6622
EL8143
ML86
ML87
The nearest residence (Thackaringa Station) is located approximately three kilometres west of EL6622.
EL6622 is transected by the Transcontinental Railway; the Barrier Highway is located the north of the licence boundaries.
The majority of the project tenure is covered by Western Lands Lease which is considered to extinguish native title interest. However, Native Title Determination NC97/32 (Barkandji Traditional Owners 8) is current over the area and may be relevant to Crown Land parcels (e.g. public roads) within the project area.
The project tenure is more than 90 kilometres from the nearest National Park and or Wilderness Area (Kinchega National Park) and approximately 20 kilometres south of the nearest Water Supply Reserve (Umberumberka Reservoir Water Supply Reserve)
The Company is not aware of any impediments to obtaining a licence to operate in the area.</td></tr>
<tr><td>Exploration done by other parties</td><td><i>Acknowledgment and appraisal of exploration by other parties.</i></td><td>A detailed and complete record of all exploration activities undertaken prior to the BPL 2016 drilling program is appended to the JORC Table 1 which forms part of the Cobalt Blue Prospectus available on the COB website.</td></tr>
<tr><td>Geology</td><td><i>Deposit type, geological setting and style of mineralisation</i></td><td>Regional Geological Setting
The Thackaringa project is located in a deformed and metamorphosed Proterozoic supracrustal succession named the Willyama Supergroup, which is exposed as several inliers in western New South Wales, including the Broken Hill Block (Willis, et al., 1982).
Exploration by Cobalt Blue Holdings Limited has been focused on the discovery and definition of cobaltiferous pyrite deposits</td></tr>
</table>

Criteria	JORC Code Explanation	Commentary
Geology *(continued)*		▪ The project area covers portions of the Broken Hill and Thackaringa group successions which host the majority of mineralisation in the region, including the Broken Hill base metal deposit. The Sundown Group suite is also present. The extensive sequence of quartz-albite-plagioclase rock that hosts the cobaltiferous pyrite mineralisation is interpreted as belonging to the Himalaya Formation, which is stratigraphically at the top of the Thackaringa Group. **Local Geological Setting** ▪ The oldest rocks in the region belong to the Curnamona Craton which outcrops on the Broken Hill and Euriowie blocks. ▪ The overlying Proterozoic rocks have been broadly subdivided into three major groupings, of which the oldest groups are the highly deformed metasediments and igneous derived rocks of the Thackaringa and Broken Hill groups. They comprise a major part of the Willyama Supergroup and host the giant Broken Hill massive Pb-Zn-Ag sulphide ore body. EL6622 is within the Broken Hill block of the Curnamona Craton. **Mineralisation Style** ▪ The Thackaringa mineral deposits (Pyrite Hill, Big Hill and Railway) are characterised by large tonnage cobaltiferous pyrite mineralisation hosted within siliceous albitic gneisses and schists of the Himalaya Formation. ▪ Cobalt mineralisation exists within extensive pyritic horizons where cobalt is present within the pyrite lattice. Mineralogical studies have indicated the majority of cobalt (~85%) is found in solid solution with primary pyrite (Henley 1998). ▪ A strong correlation between pyrite content and cobalt grade is observed.
Drill hole Information	▪ *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:* ▪ *easting and northing of the drill hole collar* ▪ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar* ▪ *dip and azimuth of the hole* ▪ *down hole length and interception depth* ▪ *hole length.* ▪ *If the exclusion of this information is justified on the basis that the information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*	▪ Drill Hole information tables are shown on the next pages.

Criteria

Commentary

Drill hole Information *(continued)*

Hole ID	Hole Type	Grid ID	Easting	Northing	RL	Max Depth (m)	Deposit	Dip	Azimuth
11PHR01	RC	MGA94_54	518435.47	6449072.76	285.34	150	Pyrite Hill	-60	278.6
11PHR02	RC	MGA94_54	518499.92	6449159.31	283.79	198	Pyrite Hill	-60	278.6
11PHR03	RC	MGA94_54	518560.3	6449189.61	280.26	240	Pyrite Hill	-60	278.6
11PHR04	RC	MGA94_54	518528.63	6449257	284.03	186	Pyrite Hill	-60	278.6
11PHR05	RC	MGA94_54	518584.25	6449397.62	280.22	234	Pyrite Hill	-60	258.6
11PHR06	RC	MGA94_54	518490.9	6449522.59	284.02	180	Pyrite Hill	-60	233.6
11PHR07	RC	MGA94_54	518413.47	6449592.9	282.86	174	Pyrite Hill	-60	218.6
11PHR08	RC	MGA94_54	518342.74	6449655.85	282.88	180	Pyrite Hill	-60	217.6
11PSR01	RC	MGA94_54	518742.73	6448864	268.38	59	Pyrite Hill	-60	257.6
11PSR02	RC	MGA94_54	518719.38	6448960.01	270.41	132	Pyrite Hill	-60	254.6
11PSR03	RC	MGA94_54	518686.99	6449055.35	272.79	78	Pyrite Hill	-60	254.6
12BER01	RC	MGA94_54	521667.31	6449893.23	277.69	157	Railway	-60	140.6
12BER02	RC	MGA94_54	521212.67	6449690.67	273.53	132	Railway	-60	161.6
12BER03	RC	MGA94_54	521879.01	6450435.47	288.59	151	Railway	-60	101.6
12BER04	RC	MGA94_54	522353.92	6451268.35	274.35	148	Railway	-60	130.6
12BER05	RC	MGA94_54	522439.47	6451167.84	299.73	145	Railway	-60	123.6
12BER06	RC	MGA94_54	522481.37	6451091.35	295.95	169	Railway	-60	126.6
12BER07	RC	MGA94_54	522323.72	6450748.75	277.91	115	Railway	-60	143.6
12BER08	RC	MGA94_54	522220.79	6450811.8	273.16	193	Railway	-60	128.6
12BER09	RC	MGA94_54	522101.25	6450881.44	275.91	139.75	Railway	-60	128.6
12BER10	RC	MGA94_54	521953.45	6450716.18	284.49	151	Railway	-60	128.6
12BER11	RC	MGA94_54	522737.22	6451376.61	265.83	193	Railway	-60	152.6
12BER12	RC	MGA94_54	522909.73	6451516.76	277.36	111	Railway	-60	152.6
12BER13	RC	MGA94_54	522883.81	6451557.54	271.03	205	Railway	-60	155.6
12BER14	RC	MGA94_54	523124.83	6451637.07	288.36	151	Railway	-60	151.6
12BER15	RC	MGA94_54	523311.3	6451841.7	283.95	109	Railway	-60	153.6
12BER16	RC	MGA94_54	522994.08	6451591.99	275.95	115	Railway	-60	155.6
12BER17	RC	MGA94_54	522516.5	6451314.94	269.1	115.5	Railway	-60	152.6
12BER18	RC	MGA94_54	522332.75	6451281.31	272.29	157	Railway	-60	128.6
12BER19	RC	MGA94_54	522240.55	6451067.15	276.16	97	Railway	-60	134.6
12BER20	RC	MGA94_54	521291.69	6449733.63	276.95	120	Railway	-60	164.6
13BED01	DDH	MGA94_54	522480.21	6451092.43	296.01	349.2	Railway	-60	300.3
16DM01	DDH	MGA94_54	518411.38	6449593.89	282.69	161.6	Pyrite Hill	-60	215.4
16DM02	DDH	MGA94_54	518526.62	6449261.58	284.18	183.4	Pyrite Hill	-60	284.9
16DM03	DDH	MGA94_54	521037.1	6449567.49	283.01	126.5	Big Hill	-60	158.4
16DM04	DDH	MGA94_54	520814.74	6449464.4	296.18	105.4	Big Hill	-55	128.4
16DM05	DDH	MGA94_54	522103.7	6450881.87	276.62	246.5	Railway	-60	128.4
16DM06	DDH	MGA94_54	522911.57	6451519.13	278.5	160.4	Railway	-60	152.4
16DM07	DDH	MGA94_54	522995.26	6451598.26	276.36	242.5	Railway	-60	156
16DM08	DDH	MGA94_54	522351.45	6451273.07	273.85	285.5	Railway	-60	130.8
17THD01	DDH	MGA94_54	518381.92	6449551.01	289.06	124.2	Pyrite Hill	-40	221.9
17THD015	DDH	MGA94_54	522037.9	6450826.2	279.21	81.6	Railway	-80	304
17THD016	DDH	MGA94_54	522088.63	6450773.65	286.96	176.9	Railway	-70	122
17THD017	DDH	MGA94_54	522614.75	6451278.72	267.55	255.9	Railway	-80	350
17THD018	DDH	MGA94_54	523013.19	6451490.72	295.02	72.5	Railway	-70	150
17THD019	DDH	MGA94_54	522667.34	6451229.21	267.14	151.3	Railway	-70	140
17THD02	DDH	MGA94_54	518475.49	6449444.54	290.54	149.7	Pyrite Hill	-40	257.9
17THD020	DDH	MGA94_54	523051.58	6451545.21	289.51	121.7	Railway	-55	310
17THD021	DDH	MGA94_54	521708.23	6449927.85	280.69	100	Big Hill	-50	133

Criteria	Commentary									
	Hole ID	Hole Type	Grid ID	Easting	Northing	RL	Max Depth (m)	Deposit	Dip	Azimuth
Drill hole Information *(continued)*	17THD022	DDH	MGA94_54	521617.69	6449728.5	277.62	70	Big Hill	-56	316
	17THD023	DDH	MGA94_54	521163.79	6449536.89	275.38	99.5	Big Hill	-55	337
	17THD024	DDH	MGA94_54	521164.19	6449535.73	275.43	69.6	Big Hill	-80	150
	17THD026	DDH	MGA94_54	518586.33	6449333.82	281.21	240.7	Pyrite Hill	-55	272
	17THD027	DDH	MGA94_54	520946.6	6449512.66	293.55	141.6	Big Hill	-75	130
	17THD028	DDH	MGA94_54	520861.99	6449317.24	285.06	171.7	Big Hill	-56	321
	17THD029	DDH	MGA94_54	518489.32	6449338.05	290.32	200.5	Pyrite Hill	-70	90
	17THD03	DDH	MGA94_54	518369.98	6449189.6	303.28	78.5	Pyrite Hill	-40	285
	17THD030	DDH	MGA94_54	518350.8	6449706.09	280.69	201.5	Pyrite Hill	-55	222
	17THD031	DDH	MGA94_54	518289.35	6449629.06	286.67	229	Pyrite Hill	-65	50
	17THD04	DDH	MGA94_54	521077.95	6449589.47	278.41	119.8	Big Hill	-45	155
	17THD05	DDH	MGA94_54	521669.07	6449888.58	278.5	99.5	Big Hill	-40	130.9
	17THD06	DDH	MGA94_54	521969.84	6450704.86	287.2	165.5	Railway	-45	127.9
	17THD07	DDH	MGA94_54	522568.957	6451282.23	270.67	274.6	Railway	-45	156.4
	17THD08	DDH	MGA94_54	522783.808	6451280.456	268.881	138.1	Railway	-45	325.9
	17THD09	DDH	MGA94_54	522904.937	6451510.699	278.471	120.5	Railway	-40	152.4
	17THD10	DDH	MGA94_54	522992.007	6451568.856	279.779	84.2	Railway	-45	129.9
	17THD11	DDH	MGA94_54	523108.935	6451681.841	280.847	111.5	Railway	-40	160.4
	17THD12	DDH	MGA94_54	522796.17	6451418.63	272.936	126.5	Railway	-40	140.65
	17THD13	DDH	MGA94_54	522835.885	6451456.179	276.747	105.5	Railway	-40	138.4
	17THD14	DDH	MGA94_54	518375.298	6449088.631	294.25	99	Pyrite Hill	-60	284.9
	17THR001	RC	MGA94_54	522614.905	6451276.766	267.561	156	Railway	-60	119.9
	17THR002	RC	MGA94_54	522573.283	6451298.801	268.511	160	Railway	-60	119.9
	17THR003	RC	MGA94_54	522123.774	6450867.944	277.39	96	Railway	-60	129.9
	17THR004	RC	MGA94_54	522386.891	6451319.044	271.453	150	Railway	-60	119.9
	17THR005	RC	MGA94_54	522024.38	6450783.074	282.154	72	Railway	-60	119.9
	17THR006	RC	MGA94_54	522049.44	6450780.22	284.01	114	Railway	-58	124.9
	17THR007	RC	MGA94_54	521964.853	6450699.403	286.585	180	Railway	-59	124.9
	17THR008	RC	MGA94_54	521916.699	6450562.283	291.682	132	Railway	-56	104.9
	17THR009	RC	MGA94_54	521906.401	6450495.508	292.751	120	Railway	-58	104.9
	17THR010	RC	MGA94_54	521958.873	6450397.997	286.445	72	Railway	-56	284.9
	17THR011	RC	MGA94_54	522301.741	6451168.608	276.812	126	Railway	-56	119.9
	17THR012	RC	MGA94_54	522440.265	6451304.371	274.931	180	Railway	-58	172.9
	17THR013	RC	MGA94_54	521749.755	6449941.667	284.89	102	Big Hill	-60	130.4
	17THR014	RC	MGA94_54	521627.785	6449796.001	277.545	104	Big Hill	-53	129.9
	17THR015	RC	MGA94_54	521792.569	6449917.51	284.847	108	Big Hill	-58	309.9
	17THR016	RC	MGA94_54	518445.67	6449208.824	290.391	138	Pyrite Hill	-57	282.9
	17THR017	RC	MGA94_54	518448.846	6449262.592	293.147	120	Pyrite Hill	-56	281.4
	17THR018	RC	MGA94_54	518027.089	6449805.615	289.567	78	Pyrite Hill	-60	221.9
	17THR019	RC	MGA94_54	518104.863	6449753.622	287.701	72	Pyrite Hill	-55	221.9
	17THR020	RC	MGA94_54	518165.502	6449694.735	288.685	66	Pyrite Hill	-60	221.9
	17THR021	RC	MGA94_54	518182.837	6449717.132	286.007	78	Pyrite Hill	-60	221.9
	17THR022	RC	MGA94_54	518510.264	6449306.337	286.82	156	Pyrite Hill	-55	280.9
	17THR023	RC	MGA94_54	518506.416	6449376.685	289.481	150	Pyrite Hill	-57	264.4
	17THR024	RC	MGA94_54	518457.103	6449498.108	288.137	150	Pyrite Hill	-59.5	228.4
	17THR025	RC	MGA94_54	518310.83	6449608.899	287.463	114	Pyrite Hill	-60	221.9
	17THR026	RC	MGA94_54	518268.199	6449680.832	284.164	114	Pyrite Hill	-60	221.9
	17THR027	RC	MGA94_54	518242.741	6449646.017	287.176	72	Pyrite Hill	-60	221.9
	17THR028	RC	MGA94_54	522457.367	6451166.573	300.659	150	Railway	-60	349.9

Criteria	Commentary

Drill hole Information *(continued)*

Hole ID	Hole Type	Grid ID	Easting	Northing	RL	Max Depth (m)	Deposit	Dip	Azimuth
17THR029	RC	MGA94_54	522481.824	6451084.489	295.964	162	Railway	-60	174.9
17THR030	RC	MGA94_54	522782.694	6451422.506	270.814	138	Railway	-55	139.9
17THR031	RC	MGA94_54	522945.084	6451565.894	276.19	120	Railway	-55	144.9
17THR032	RC	MGA94_54	522819.135	6451472.852	273.712	132	Railway	-53	139.9
17THR033	RC	MGA94_54	522501.43	6451314.769	269.63	120	Railway	-60	174.9
17THR034	RC	MGA94_54	522320.672	6451213.859	275.947	132	Railway	-55	126.9
17THR035	RC	MGA94_54	522259.009	6451120.224	275.749	156	Railway	-55.2	129.9
17THR036	RC	MGA94_54	522185.924	6450998.472	275.339	92	Railway	-61.2	129.9
17THR037	RC	MGA94_54	522148.24	6450941.485	274.202	126	Railway	-55	125.9
17THR038	RC	MGA94_54	521926.706	6450619.128	289.555	168	Railway	-55	107.9
17THR039	RC	MGA94_54	522477.26	6451299.1	273.56	210	Railway	-55.8	168.7
17THR040	RC	MGA94_54	522528.39	6451299.76	270.47	276	Railway	-55	164
17THR041	RC	MGA94_54	522692.02	6451243.72	265.1	210	Railway	-55	339
17THR042	RC	MGA94_54	522587.82	6451160.13	282.86	234	Railway	-55	336
17THR043	RC	MGA94_54	522530.75	6451184.79	289.25	200	Railway	-55	341
17THR044	RC	MGA94_54	522419.53	6451159.4	297.98	180	Railway	-55	311
17THR045	RC	MGA94_54	522526.35	6451168.39	290.07	210	Railway	-55	311
17THR046	RC	MGA94_54	522500.76	6451202.92	290.5	216	Railway	-56	311
17THR047	RC	MGA94_54	522437.58	6451115.13	296.5	246	Railway	-55	311
17THR048	RC	MGA94_54	522480.92	6451123.99	297.74	122	Railway	-55	310
17THR049	RC	MGA94_54	522378.17	6451130.49	292.05	138	Railway	-55	310
17THR050	RC	MGA94_54	522656.53	6451143.01	274.37	154	Railway	-63	344
17THR051	RC	MGA94_54	522363.94	6451070.31	282.59	174	Railway	-55	304
17THR052	RC	MGA94_54	522641.6	6451183.73	274.47	246	Railway	-60	318
17THR053	RC	MGA94_54	522314.92	6451027.72	278.16	156	Railway	-50	291
17THR054	RC	MGA94_54	522671.16	6451231.98	266.64	180	Railway	-60	148
17THR055	RC	MGA94_54	522260.58	6450986.64	278.21	114	Railway	-55	308
17THR056	RC	MGA94_54	522558.34	6451284.89	270.77	102	Railway	-55	334
17THR057	RC	MGA94_54	522220.16	6450908.66	274.24	111	Railway	-55	314
17THR058	RC	MGA94_54	522466.73	6451328.16	269.82	210	Railway	-60	333
17THR059	RC	MGA94_54	522197.7	6450857.19	273.73	150	Railway	-55	313
17THR060	RC	MGA94_54	523005.75	6451494.2	294.07	181	Railway	-55	158
17THR061	RC	MGA94_54	522161.2	6450788.69	277.36	138	Railway	-55	308
17THR062	RC	MGA94_54	522982.99	6451450.49	295.85	168	Railway	-55	160
17THR064	RC	MGA94_54	522930.84	6451402.69	294.56	171	Railway	-55	306
17THR065	RC	MGA94_54	522108.14	6450664.31	282.78	174	Railway	-55	331
17THR066	RC	MGA94_54	522865.27	6451366.56	291.59	168	Railway	-55	307
17THR067	RC	MGA94_54	522022.35	6450479.25	283.66	150	Railway	-60	327
17THR068	RC	MGA94_54	522751.9	6451407.39	267.7	210	Railway	-56.1	329
17THR069	RC	MGA94_54	522008.3	6450647.2	301.3	96	Railway	-60	117
17THR070	RC	MGA94_54	522812.63	6451242.07	266.32	228	Railway	-60	300
17THR071	RC	MGA94_54	522070.4	6450845.81	278.55	142	Railway	-60	130
17THR074	RC	MGA94_54	522571.68	6450984.72	271.16	300	Railway	-60	310
17THR075	RC	MGA94_54	522012.61	6450770.25	282.6	148	Railway	-55	121
17THR076	RC	MGA94_54	522478.62	6450944.93	271.56	300	Railway	-60	355
17THR077	RC	MGA94_54	521992.89	6450742.81	284.64	180	Railway	-55	117
17THR078	RC	MGA94_54	518219.8	6449774.3	281.23	157	Pyrite Hill	-60	222
17THR079	RC	MGA94_54	521912.03	6450596.65	288.71	120	Railway	-55	116
17THR080	RC	MGA94_54	518024.25	6449781.76	291.63	67	Pyrite Hill	-55	190

Criteria	Commentary									
	Hole ID	Hole Type	Grid ID	Easting	Northing	RL	Max Depth (m)	Deposit	Dip	Azimuth
Drill hole Information *(continued)*	17THR081	RC	MGA94_54	522339.79	6451238.8	275.91	184	Railway	-55	125
	17THR082	RC	MGA94_54	517972.33	6449842.18	290.3	67	Pyrite Hill	-55	222
	17THR083	RC	MGA94_54	522365.03	6451282.32	274.2	156	Railway	-55	133
	17THR084	RC	MGA94_54	518343.3	6449587.53	287.21	97	Pyrite Hill	-55	205
	17THR085	RC	MGA94_54	520878.42	6449522.93	287.41	210	Big Hill	-60	141
	17THR086	RC	MGA94_54	518427.15	6449540.98	286.81	157	Pyrite Hill	-55	218
	17THR087	RC	MGA94_54	518466.29	6449586.59	281.67	181	Pyrite Hill	-60	218
	17THR088	RC	MGA94_54	518392.08	6449633.28	281.8	175	Pyrite Hill	-55	213
	17THR089	RC	MGA94_54	521571.04	6449709.06	274.02	108	Big Hill	-60	141
	17THR090	RC	MGA94_54	521691.5	6449794.05	284.09	96	Big Hill	-55	312
	17THR091	RC	MGA94_54	518423.7	6449679.07	279.49	211	Pyrite Hill	-55	219
	17THR092	RC	MGA94_54	518300.57	6449660.9	284.51	139	Pyrite Hill	-55	219
	17THR093	RC	MGA94_54	518270.39	6449732.39	281.48	151	Pyrite Hill	-55	219
	17THR094	RC	MGA94_54	518568.37	6449501.3	279.13	240	Pyrite Hill	-60	253
	17THR095	RC	MGA94_54	518509.1	6449194.19	283.43	205	Pyrite Hill	-55	273
	17THR096	RC	MGA94_54	518539.91	6449418.96	283.92	187	Pyrite Hill	-60	257
	17TRD063	RCDD	MGA94_54	522137.49	6450724.64	279.94	169.5	Railway	-55	305
	17TRD072	RCDD	MGA94_54	522622.9	6451044.3	270.7	210	Railway	-60	320
	17TRD073	RCDD	MGA94_54	522035.27	6450817.14	279.65	195.4	Railway	-55	126
	18THD001	DDH	MGA94_54	518219.66	6449624.39	291.25	30.9	Pyrite Hill	-60	226
	18THD002	DDH	MGA94_54	518238.34	6449585.82	296.53	54.9	Pyrite Hill	-60	226
	18THD003	DDH	MGA94_54	518240.6	6449583.32	296.57	33.7	Pyrite Hill	-60	316
	18THD004	DDH	MGA94_54	518563.05	6449270.02	281.75	210.3	Pyrite Hill	-60	270
	18THD005	DDH	MGA94_54	518097.07	6449782.4	285.94	81.7	Pyrite Hill	-60	226
	18THD006	DDH	MGA94_54	518678.96	6449375.41	277.53	324.3	Pyrite Hill	-60	260
	18THD007	DDH	MGA94_54	518069.73	6449760.09	289.96	63.8	Pyrite Hill	-60	226
	18THD008	DDH	MGA94_54	517942.29	6449795.12	299.01	38.6	Pyrite Hill	-60	226
	18THD009	DDH	MGA94_54	518075.4	6449705.21	299.4	45.8	Pyrite Hill	-60	210
	18THD010	DDH	MGA94_54	517976.88	6449788.42	296.55	39.8	Pyrite Hill	-60	226
	18THD011	DDH	MGA94_54	518009.86	6449756.41	297.48	45.7	Pyrite Hill	-50	226
	18THD012	DDH	MGA94_54	518595.67	6449597.05	276.68	315.7	Pyrite Hill	-60	226
	18THD013	DDH	MGA94_54	518106.83	6449687.25	299.12	42.7	Pyrite Hill	-55	226
	18THD014	DDH	MGA94_54	518145.51	6449664.83	297.29	39.7	Pyrite Hill	-60	226
	18THD015	DDH	MGA94_54	518379.27	6449267.6	309.39	60.7	Pyrite Hill	-60	270
	18THD016	DDH	MGA94_54	518367.55	6449227.47	307.37	60.8	Pyrite Hill	-55	270
	18THD017	DDH	MGA94_54	518402.34	6449225.8	300.2	90.8	Pyrite Hill	-60	270
	18THD018	DDH	MGA94_54	518478.07	6449819.33	278.07	339.3	Pyrite Hill	-60	226
	18THD019	DDH	MGA94_54	518400.61	6449521.31	292.39	150.6	Pyrite Hill	-53	226
	18THD020	DDH	MGA94_54	518456.96	6449380.78	298.48	132.8	Pyrite Hill	-45	275
	18THD021	DDH	MGA94_54	518326.24	6449188.81	312.63	20.3	Pyrite Hill	-90	360
	18THR001	RC	MGA94_54	518559.01	6449231.18	280.96	216	Pyrite Hill	-60	270
	18THR002	RC	MGA94_54	518516.02	6449226.4	283.47	208	Pyrite Hill	-60	270
	18THR003	RC	MGA94_54	518484.17	6449221.88	285.58	162	Pyrite Hill	-60	270
	18THR004	RC	MGA94_54	518476.48	6449188.87	286.37	180	Pyrite Hill	-60	270
	18THR005	RC	MGA94_55	518441.66	6449144.93	288.01	150	Pyrite Hill	-60	270
	18THR006	RC	MGA94_54	518360.85	6449595.72	285.45	144	Pyrite Hill	-60	226
	18THR007	RC	MGA94_54	518547.66	6449305.68	283.41	192	Pyrite Hill	-55	270
	18THR008	RC	MGA94_54	518343.97	6449635.49	283.55	144	Pyrite Hill	-53	226
	18THR009	RC	MGA94_54	518569.36	6449408.25	281.08	216	Pyrite Hill	-60	260

Criteria	Commentary

Drill hole Information *(continued)*

Hole ID	Hole Type	Grid ID	Easting	Northing	RL	Max Depth (m)	Deposit	Dip	Azimuth
18THR010	RC	MGA94_54	518532.73	6449360.12	284.92	168	Pyrite Hill	-60	260
18THR011	RC	MGA94_54	518322.22	6449676.84	283.22	162	Pyrite Hill	-60	226
18THR012	RC	MGA94_54	518370.03	6449666.15	281.38	174	Pyrite Hill	-60	226
18THR013	RC	MGA94_54	518298.17	6449706.47	281.98	138	Pyrite Hill	-60	226
18THR014	RC	MGA94_54	518694.51	6449270.48	276.9	342	Pyrite Hill	-60	270
18THR015	RC	MGA94_54	518235.64	6449701.08	283.82	96	Pyrite Hill	-60	226
18THR016	RC	MGA94_54	518214.75	6449737.47	282.55	102	Pyrite Hill	-60	226
18THR017	RC	MGA94_54	518127.79	6449754.95	285.64	78	Pyrite Hill	-60	226
18THR018	RC	MGA94_54	518137.36	6449716.74	289.22	66	Pyrite Hill	-60	226
18THR019	RC	MGA94_54	518006.92	6449805.88	291.23	72	Pyrite Hill	-60	226
18THR020	RC	MGA94_54	518035.63	6449835.82	287.23	96	Pyrite Hill	-60	226
18THR021	RC	MGA94_54	518087.53	6449721.83	294.28	60	Pyrite Hill	-60	226
18THR022	RC	MGA94_54	518257.71	6449610.19	290.01	66	Pyrite Hill	-60	226
18THR023	RC	MGA94_54	518284.04	6449587.56	291.55	102	Pyrite Hill	-60.49	229.15
18THR024	RC	MGA94_54	518333.33	6449569.57	289.63	114	Pyrite Hill	-50.56	226.59
18THR025	RC	MGA94_54	518438.4	6449508.58	289	150	Pyrite Hill	-50.15	225.23
18THR026	RC	MGA94_54	518485.03	6449439.15	288.92	150	Pyrite Hill	-60	260
18THR027	RC	MGA94_54	518681.9	6449447.29	276.64	314	Pyrite Hill	-60	260
18THR028	RC	MGA94_54	518458.51	6449378.62	297.95	132	Pyrite Hill	-60	260
18THR029	RC	MGA94_54	518455.88	6449353.13	296.54	120	Pyrite Hill	-60	260
18THR030	RC	MGA94_54	518495.52	6449356.57	290.04	138	Pyrite Hill	-60	260
18THR031	RC	MGA94_54	518431.08	6449305.58	298.32	96	Pyrite Hill	-55	270
18THR032	RC	MGA94_54	518462.16	6449308.34	292.63	126	Pyrite Hill	-60	270
18THR033	RC	MGA94_54	518518.77	6449639.54	277.94	240	Pyrite Hill	-60	226
18THR034	RC	MGA94_54	518417.81	6449263.13	299.62	96	Pyrite Hill	-55	270
18THR035	RC	MGA94_54	518469.09	6449267.21	289.77	132	Pyrite Hill	-60	270
18THR036	RC	MGA94_54	518432.2	6449181.26	290.8	132	Pyrite Hill	-60	270
18THR037	RC	MGA94_54	518384.95	6449185.57	298.77	96	Pyrite Hill	-58	270
18THR038	RC	MGA94_54	518435.94	6449605.44	281.46	186	Pyrite Hill	-60	226
18THR039	RC	MGA94_54	522031.54	6450775.25	283.21	206	Railway	-60	123
18THR040	RC	MGA94_54	522057.07	6450757.04	288.93	160	Railway	-60	123
18THR041	RC	MGA94_54	518497.05	6449723.67	277.9	272	Pyrite Hill	-60	226
18THR042	RC	MGA94_54	522007.07	6450738.22	286.39	120	Railway	-60	123
18THR043	RC	MGA94_54	518413.96	6449753	278.56	252	Pyrite Hill	-60	226
18THR044	RC	MGA94_54	521960.4	6450676.73	289.26	130	Railway	-55	123
19THD001	DDH	MGA94_54	518287.89	6449592.15	290.54	114.3	Pyrite Hill	-45	188
19THR001	RC	MGA94_54	523259.12	6451701.45	288.66	84	Railway	-60	138
19THR002	RC	MGA94_54	518136.22	6449797.05	283.19	132	Pyrite Hill	-60	226
19THR003	RC	MGA94_54	523272.25	6451773.26	285.29	174	Railway	-55	138
19THR004	RC	MGA94_54	518077.9	6449858.46	284.14	132	Pyrite Hill	-60	226
67TH01	DDH	MGA94_54	518564.805	6449460.03	280.643	304.2	Pyrite Hill	-55	261
70BH01	DDH	MGA94_54	520850.56	6449308.5	284.56	102.7	Big Hill	-47	319
70BH02	DDH	MGA94_54	520786.12	6449264.4	280.1	103.9	Big Hill	-50	319
70TH02	DDH	MGA94_54	518272.42	6449680.54	284.08	148.6	Pyrite Hill	-61	219
70TH03	DDH	MGA94_54	518449.85	6449211.88	289.81	141.4	Pyrite Hill	-62	284
80BGH05	PDDH	MGA94_54	520955.35	6449534.41	288.93	54.86	Big Hill	-60	163.4
80BGH06	PDDH	MGA94_54	520880	6449472	299	68.04	Big Hill	-60	170.4
80BGH07	RC	MGA94_54	521136.56	6449599	274.11	23	Big Hill	-60	177.4
80BGH08	PDDH	MGA94_54	520768.79	6449390.93	296.29	79.7	Big Hill	-60	126.4

Criteria	Commentary

Drill hole Information *(continued)*

Hole ID	Hole Type	Grid ID	Easting	Northing	RL	Max Depth (m)	Deposit	Dip	Azimuth
80BGH09	PDDH	MGA94_54	520657.43	6449292.52	272.8	100.5	Big Hill	-50	144.4
80PYH01	PDDH	MGA94_54	518246.2	6449565.7	301.1	24.53	Pyrite Hill	-60	202.4
80PYH02	PDDH	MGA94_54	518260.7	6449574.2	297.6	51.3	Pyrite Hill	-60	220.4
80PYH03	PDDH	MGA94_54	518251.5	6449569.9	299.4	35	Pyrite Hill	-60	220.4
80PYH04	PDDH	MGA94_54	518366.55	6449231.74	308.34	55	Pyrite Hill	-60	295.4
80PYH05	PDDH	MGA94_54	518226.97	6449678.19	285.18	93.6	Pyrite Hill	-49	222.4
80PYH06	PDDH	MGA94_54	518163.48	6449757.3	283.73	85.5	Pyrite Hill	-54.4	222.4
80PYH07	PDDH	MGA94_54	518084	6449818.36	285.16	94.5	Pyrite Hill	-55	222.4
80PYH08	PDDH	MGA94_54	518009.54	6449885.43	286.14	110	Pyrite Hill	-60	222.4
80PYH09	PDDH	MGA94_54	517917.4	6449931.76	286.55	100.5	Pyrite Hill	-48.5	222.4
80PYH10	PDDH	MGA94_54	518392.96	6449565.96	285.53	145.3	Pyrite Hill	-50	222.4
80PYH11	PDDH	MGA94_54	518440.96	6449329.52	297.25	103.1	Pyrite Hill	-50	280.4
80PYH12	PDDH	MGA94_54	518407.28	6449137.31	292.63	109.5	Pyrite Hill	-50	280.4
80PYH13	DDH	MGA94_54	518358.2	6449037.7	290.35	77	Pyrite Hill	-50	280.4
80PYH14	DDH	MGA94_54	518661.18	6449287.62	277.96	300.3	Pyrite Hill	-60	280.4
93MGM01	PDDH	MGA94_54	518185.44	6449713.77	286.28	70	Pyrite Hill	-60	222.4
93MGM02	PDDH	MGA94_54	518515.45	6449454.67	284.79	180	Pyrite Hill	-60	258.4
98TC01	RC	MGA94_54	522750.06	6451339.73	267.27	100	Railway	-60	158.4
98TC02	RC	MGA94_54	522392.41	6451386.83	266.78	100	Railway	-60	140.4
98TC03	RC	MGA94_54	520816.45	6449369.39	313.05	84	Big Hill	-60	135.4
98TC04	RC	MGA94_54	520860.05	6449450.85	304.09	138.25	Big Hill	-60	140.4
98TC05	RC	MGA94_54	520728	6449328.07	288.63	70	Big Hill	-50	122.4
98TC06	RC	MGA94_54	520715	6449343	285.13	108	Big Hill	-60	125.4
98TC07	RC	MGA94_54	520785.97	6449388.21	299.22	120	Big Hill	-50	133.4
98TC08	RC	MGA94_54	520801.95	6449477.81	291.01	90	Big Hill	-60	150.4
98TC09	RC	MGA94_54	520822.21	6449460.79	296.25	114	Big Hill	-60	133.4
98TC10	RC	MGA94_54	521019.02	6449575.66	281.08	134	Big Hill	-50	172.4
98TC11	RC	MGA94_54	522411.2	6451373.96	267.01	35	Railway	-60	132.4

DDH	Diamond drill hole
PDDH	Diamond drill hole with percussion pre-collar
RCDDH	Diamond drill hole with reverse circulation pre-collar
RDDH	Diamond drill hole with rotary air blast pre-collar
RC	Reverse Circulation drill hole

Criteria	JORC Code Explanation	Commentary
Data aggregation methods	- *In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (eg cutting of high grades) and cut-off grades are usually Material and should be stated.* - *Where aggregate intercepts incorporate short lengths of high grade results and longer lengths of low grade results, the procedure used for such aggregation should be stated and some typical examples of such aggregations should be shown in detail.* - *The assumptions used for any reporting of metal equivalent values should be clearly stated.*	- Drill hole intercept grades are reported as down-hole length-weighted averages with any non-recovered sample within the reported intervals treated as no grade. The cut-off used for selecting significant intersections reflects the overall tenor of mineralisation, in most cases >500 ppm cobalt. - No top cuts have been applied when calculating average grades for reported significant intersections.
Relationship between mineralisation widths and intercept lengths	- *These relationships are particularly important in the reporting of Exploration Results.* - *If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.* - *If it is not known and only the down hole lengths are reported, there should be a clear statement to this effect (eg 'down hole length, true width not known').*	- Drill holes at the Thackaringa project are typically angled at 50° or 60° and drilled perpendicular to the mineralised trend with drilling orientations adjusted along strike to accommodate folded geological sequences. - Mineralisation at the Big Hill and Railway prospects is steeply dipping and consequently mineralised intersections will be greater than true width. At Pyrite Hill mineralisation is gently dipping and mineralised intersections will be close to true width. - There is insufficient geological knowledge to accurately estimate true widths and as such all drill intersections are reported as down hole lengths.
Diagrams	- *Appropriate maps and sections (with scales) and tabulations of intercepts should be included for any significant discovery being reported These should include, but not be limited to a plan view of drill hole collar locations and appropriate sectional views.*	- Appropriate maps are presented in the accompanying ASX release.
Balanced reporting	- *Where comprehensive reporting of all Exploration Results is not practicable, representative reporting of both low and high grades and/or widths should be practiced to avoid misleading reporting of Exploration Results.*	- Only mineralised drill hole intersections regarded as highly anomalous and of economic interest are reported. The proportion of each hole represented by the reported intervals can be ascertained from the sum of the reported intervals divided by the total drill hole depth. - All assay results for drill holes included in the various Mineral Resource estimates have been considered and comprise results not necessarily regarded as anomalous.

Criteria	JORC Code Explanation	Commentary
Other substantive exploration data	- *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	- A Preliminary Feasibility Study ('PFS') was completed in June 2018 and released on 4 July 2018. Results of the PFS can be reviewed via the ASX Announcement Thackaringa Pre-Feasibility Study Announced. Detailed metallurgical studies completed for the Preliminary Feasibility Study examined a processing pathway comprising four primary stages of ore treatment: - **Concentration of Pyrite from Ore** The mined ore is crushed to p80 ~ 800–900 um (p100 1.2mm) and passed over gravity spirals to produce a pyrite concentrate. The gravity tails are screened and the fines fraction (<125 um) is sent to a scavenger flotation circuit to recover any sulphides. The use of gravity spirals, takes advantage of the coarse pyrite grains (p80 200-800 um), and limits costs associated with crushing and milling the ore, as would be the case for a typical flotation circuit requiring feed at p80 100–200 um. In the PFS testwork program, 820 kg of ore at 607 ppm Co, 7.94% Fe, 7.58% S & 59.84% SiO2 was trialled using a full-sized gravity spiral and a 14 L flotation cell. The recovery of cobalt to concentrate was 92%, at a grade of 3326 ppm. The ore was tested on a continuous pilot basis. - **Thermal Decomposition (Pyrolysis) Of Pyrite Concentrate** The pyrite mineral is thermally decomposed into pyrrhotite and elemental sulphur by heating to 650–700°C. A nitrogen atmosphere is used to prevent any oxidation. The off-gas is collected and cooled to recover the sulphur. In the PFS testwork program, 100 kg of concentrate grading 3326 ppm cobalt was processed in a custom-built rotary furnace. Variations in operating conditions were tested, with the best results showing that >95% of the pyrite could be converted into pyrrhotite along with the simultaneous recovery of 40% of the head sulphur. The calcine was then passed through a magnetic separator to prepare a magnetic fraction containing pyrrhotite for leaching, and a non-magnetic fraction containing unreacted pyrite for recycle to the concentrator circuit. - **Leaching and Production of Mixed Hydroxide Precipitate** The artificial pyrrhotite is leached in a low-temperature (130°C) and pressure (10–15 bar) autoclave. The resulting leach residue is screened, and the coarse fraction is sent for sulphur recovery by distillation or remelting. The fines fraction is discarded as tails from the process plant. The resulting leach solutions are treated to remove iron, copper and zinc before precipitating the cobalt as a mixed hydroxide (along with nickel and manganese). In the PFS testwork program, ~ 30 kg of calcine product from the furnace was leached in batches of 250g to 1kg. Variations in the operating conditions were tested, with the best results showing that 97-98% of the cobalt could be leached consistently from the pyrolysis calcine. - **Refining of The Mixed Hydroxide Precipitate to Produce Cobalt Sulphate Crystals** In the PFS testwork program, variations on the ion-exchange and solvent extraction circuits were tested. The best conditions resulted in the production of cobalt sulphate heptahydrate grading ~20.5% with total impurities at ~800 ppm copper and 800 ppm manganese. Further optimisation of the parameters for the ion-exchange circuits, is expected to reduce the copper and manganese content reporting to the cobalt sulphate in future testwork.

Criteria	JORC Code Explanation	Commentary
Other substantive exploration data *(continued)*	- *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	- Since the completion of the Pre-Feasibility Study (PFS) in mid-2018, COB has been advancing the metallurgical program for the Broken Hill (Thackaringa) Cobalt Project. As previously announced on 26 February 2019, COB has been treating 45 t (wet basis) of Reverse Circulation (RC) drill chips through a pilot-scale concentrate circuit at ALS Metallurgy, Burnie Tasmania. The results of this testwork are the subject of this release.
Further work	- *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* - *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	- Areas of possible extension are outlined in the ASX Announcement Thackaringa Feasibility Study Drilling Campaign Commences (01 November 2018).