Market Update



13 September 2018

Cobalt Blue Holdings Limited A Green Energy Exploration Company



ASX Code: COB

Commodity Exposure: Cobalt and Sulphur

Directors & Management:

Robert Biancardi	Non-Exec Chairman
Hugh Keller	Non-Exec Director
Joe Kaderavek	CEO & Exec Director
Matt Hill	Non-Exec Director
Robert Waring	Company Secretary
Capital Structure:	

Ordinary Shares at 13/09/2018:	116.2m
Options (ASX Code: COBO):	24.4m
Market Cap (undiluted):	\$52.3m
Share Price:	
Share Price at 13/00/2018	\$0.42

THACKARINGA THACKARINGA Broken Hill Adelade Sydney Broken Hill 23 KATO BROKEN HILL Railway EL 6622 EL 9143 Pyrite Hill

Cobalt Blue Holdings Limited

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September 2018 - Highlights

Bankable Feasibility Study Commences with Drilling Campaign and Project Optimisation Studies

2018 – 2019 drilling campaign to target improved Mineral Resource classification and growth

KEY POINTS:

- Following completion of a Pre-Feasibility Study (PFS), the Thackaringa Cobalt Project has entered the Bankable Feasibility Study (BFS) phase. We are pleased to update the market on progress.
- Cobalt Blue Holdings Limited (ASX:COB) is commencing the largest single drilling campaign at Thackaringa – in excess of 15,000 metres will be drilled over the coming six months. Previously, between 2H 2016 and 1H 2018, COB has drilled a total of 20,445 metres (38 diamond drill holes, 93 RC drill holes, and 3 RC drill holes with diamond tails) over three campaigns.
- Updated Resource Model due end Q2 2019.

2018-2019 Drilling Program Aims:

The drilling campaign has five broad aims:

- Improved Mineral Resource classification defining Measured Resources.
- **Growth of Mineral Resources –** exploration along margins of existing mineralised bodies.

• **Confirmation of the location of infrastructure and site layout** – geotechnical and hydrogeological drilling for project infrastructure and process plant civil works.

- Overburden definition identification of oxide and/or transition layer(s).
- Blue-sky exploration follow up previously identified geophysical anomalies.

Improved Resource Classification

Based on the results of the PFS, COB is aiming to define a component of Measured Mineral Resources. This will require in-fill drilling at approximately 40 metre spacing to improve geological confidence and data density. During the BFS Mining Study, Measured Mineral Resources will be evaluated for conversion to Proven Ore Reserves. Typically, the target quantity for Proven Ore Reserves would be sufficient to fulfil the initial 3 to 5 year period of the proposed project production, as defined in the BFS.

Additional in-fill drilling will target improved classification of Inferred to Indicated Mineral Resources. Indicated Mineral Resources will be evaluated for conversion into Probable Ore Reserves during the BFS Mining Study.

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Mineral Resource Growth

In the upcoming campaign, COB is aiming to increase the Inferred Mineral Resources by targeting down-dip extensions at the Pyrite Hill deposit and shallow strike extensions at the Big Hill and Railway deposits. As part of the BFS, COB is targeting a 20+ year mine life with growth of the overall Mineral Resource a key component of achieving this target. For clarity, future additional drilling campaigns are expected to be undertaken following completion of the 2H 2018 to 1H 2019 program which is described in this announcement.

Exploration targets identified for current and future phases of exploration drilling are summarised in Table 1, and the location of these targets with respect to the Mineral Resources are shown in Figures 1, 2 and 3.

Table 1. Exploration targets identified for assessment during current and future phases of exploration drilling

		Tonne	es (Mt)	Grade (Co ppm)		
Deposit	Target Area	Lower	Upper	Lower	Upper	
Pyrite Hill	А	6.6	13.7	900	950	
Big Hill	В	0.7	2.6	650	750	
Big Hill	С	0.1	0.4	600	700	
Railway	D	3.3	8.1	700	800	
Railway	E	0.3	2.5	900	1,100	
Total	-	11.0	27.3	820	900	

Note: Minor rounding errors may have occurred in the compilation of this table. The potential quantity and grade of these target is conceptual in nature. There has been insufficient exploration to define a Mineral Resource and it is uncertain if further exploration will result in determination of a Mineral Resource.

Figure 1. Pyrite Hill deposit looking southwest and illustrating the location of the down dip exploration target immediately beneath the known Mineral Resource. Mineral Resource shown by classification and estimated using a 500ppm cobalt cut-off.





Figure 2. Railway deposit looking north and illustrating shallow parallel/strike extension targets. Mineral Resource shown by classification and estimated using a 500ppm cobalt cut-off.



Figure 3. Big Hill deposit looking northeast and illustrating strike extension targets. Resource shown by classification and estimated using a 500ppm cobalt cut-off.





Oxidation Boundary Definition

COB will drill near-surface holes to better define the oxide and/or transition oxide-sulphide layers which represent shallow overburden (10–25 metres) on top of the fresh sulphide ore. To date (in the PFS and Scoping Study), oxidised and partially oxidised material was excluded from the reported Mineral Resources and subsequently proposed mining and processing studies. The drilling campaign will identify if any cobalt is present through the oxidation profile, and if so, related metallurgical studies will then be undertaken.

Infrastructure and Site Layout

In support of continuing technical studies commissioned for the broader BFS, COB will complete additional drilling for the purposes of geotechnical, hydrological and hydrogeological assessment related to infrastructure, mining and process plant planning.

Blue-sky exploration

In September 2017, the entire project area (63km2) was surveyed using a heliborne electromagnetic (EM) survey (VTEM-Max) at a nominal 100 metre line spacing. Several strong EM responses outside of the existing Mineral Resources (Pyrite Hill, Railway Deposit and Big Hill) were recorded and have now been cross-checked with coincident geophysical (Induced Polarisation) and geochemical anomalism (see Figure 4). In the upcoming drilling campaign, COB will undertake some preliminary drilling at these targets during the proposed program.

Figure 4. Priority exploration targets identified through processing of the heliborne electromagnetic ('EM') survey (VTEM-Max) completed during September 2017.



We look forward to keeping the market informed as the campaign results become available during Q4 2018 and Q1 2019. An updated Mineral Resource statement is due by the end of Q1 CY2019.

Over the period 2H CY 2016 to 1H CY2018, COB has delivered a 118% increase in total Mineral Resource tonnes and a 124% increase in contained cobalt (inclusive of Indicated and Inferred Mineral Resource classifications). This growth in total Mineral Resources and improvement of classification is shown in Figure 5





Figure 5. Mineral Resource growth for the Thackaringa deposits inclusive of Pyrite Hill, Big Hill and Railway Hill.

The Thackaringa Cobalt Project

The Thackaringa Cobalt Project (the Project) is located approximately 23 km west-southwest of Broken Hill and comprises four tenements for a total area of 63 km². The project is subject to a farm-in agreement between COB and Broken Hill Prospecting Limited (ASX:BPL).

The tenements host three large tonnage cobalt-bearing pyrite deposits with a reported Mineral Resource of 72 million tonnes at 852ppm cobalt (Co), 9.3% sulphur (S) & 10% iron (Fe) for 61Kt contained cobalt (at a 500ppm cobalt cut-off).

The Mineral Resource estimate at Thackaringa is apportioned to the three main deposits as detailed in Table 2.

Table 2. The Mineral Resource estimates for the Thackaringa Cobalt deposits (at a cut-off of 500ppm Co)detailed by Mineral Resource category

Note minor rounding errors may have occurred in the compilation of this table. Pyrite is estimated from block estimates by: Pyrite = S/53.333×100.

Category	Mt	Co ppm	Fe %	S %	Pyrite % ¹	Contained Co (t)	Py Mt	Density		
Railway (at a	a 500ppm (Co cut-off)								
Indicated	23	854	10.1	9.2	17	19,400	4	2.85		
Inferred	14	801	10.4	9.2	17	11,100	2	2.85		
Total	37	842	10.2	9.2	17	30,800	6	2.85		
Big Hill (at a 500ppm Co cut-off)										
Indicated	7	712	7.2	6.9	13	5,200	1	2.77		
Inferred	2	658	6.7	6.3	12	1,500	0	2.76		
Total	10	697	7.1	6.7	13	6,700	1	2.77		
Pyrite Hill (a	t a 500ppn	n Co cut-off)								
Indicated	22	937	10.9	10.3	19	20,300	4	2.87		
Inferred	4	920	11.2	10.8	20	4,000	1	2.89		
Total	26	934	10.9	10.3	19	24,200	5	2.88		
Total (at a 50	00ppm Co	cut-off)								
Indicated	52	869	10.0	9.3	17	44,900	9	2.85		
Inferred	20	810	10.1	9.2	17	16,600	4	2.85		
Total	72	852	10.0	9.3	17	61,500	13	2.85		

Source: Cobalt Blue



Thackaringa Project Optimisation Studies

COB is progressing several option studies identified in the PFS. These opportunities are explained below:

Target Revenue Increases:

- Life of Mine: The production target identified in the PFS provided an initial mine life of 12.8 years at a steady-state throughput of 5.25 million tonnes per annum ore. This mine life is limited largely by current available geological information, rather than economic factors. In other words, the mineral resource of 72 million tonnes limited the production target and remains the most significant upside factor in our focus. Given that the development capital is largely expended in the early years of the project, increasing mine life will drive significant free cash flow generation for the project. Our aspirational target is a 20+ year project and for shareholders this is a substantially different investment. The market can expect a mineral resource update by the end of Q1 2019.
- Cobalt and Sulphur Recoveries: The PFS assumed a conservative 85.5% cobalt recovery (in ground to payable metal), including (negative) allowances for scale-up from the existing laboratory testwork results of 88.5% metal recovery. Our long-term target is to achieve a 90% cobalt recovery. A bulk test work program is being commissioned that will enable COB to undertake more detailed marketing studies and build confidence with potential commercial partners. The market can expect an update on recoveries by the end of Q2 2019.

Target Cost Reductions:

- **Power:** The PFS identified that approximately 22% of operational cash costs were related to grid power consumption. COB will perform the following power related studies to be completed by end of Q2 2019:
 - Optimising waste heat capture and re-use how much energy can be recycled?
 - Optimising the daily load profile how much peak energy can be avoided?
 - Distributed energy generation and storage how much energy can be generated on-site? Can energy storage (e.g.: Li-ion batteries) be used effectively to shift demand away from peak time-of-day prices?
- Process Plant Tailings: Tailings and associated handling represented approximately 10% of operational cash costs in the PFS.
 COB is undertaking optimisation studies which are expected to be completed by early Q4 2018.

Independent Review - Wood PLC

In parallel with the above studies, Wood PLC (formerly AMEC Foster Wheeler), a leading global engineering firm, has been engaged to provide a gap analysis review of the PFS. This review, expected to be finalised shortly, will help shape the BFS scope and ensure that critical study areas are being addressed with appropriate resources.

Currently Cobalt Blue has the following beneficial interests in the tenements:

EL 6622	70% beneficial interest Cobalt Blue Holdings Limited
EL 8143	70% beneficial interest Cobalt Blue Holdings Limited
ML 86	70% beneficial interest Cobalt Blue Holdings Limited
ML 87	70% beneficial interest Cobalt Blue Holdings Limited

Cobalt Blue Background

Cobalt Blue (COB) is an exploration company focussed on green energy technology and strategic development to upgrade its mineral resource at the Thackaringa Cobalt Project in New South Wales from Inferred to Indicated status. This strategic metal is in strong demand for new generation batteries, particularly lithium-ion batteries now being widely used in clean energy systems.

COB is undertaking exploration and development programs on the Thackaringa Cobalt Project pursuant to a farm-in joint venture agreement entered into with Broken Hill Prospecting Limited (ASX:BPL). Subject to the achievement of milestones, COB will be entitled to acquire 100% of the Thackaringa Cobalt Project. Until Cobalt Blue's farm-in obligations have been satisfied, its interest in the tenements located at the Thackaringa Project is beneficial. Under the terms of the farm-in joint venture agreement, Cobalt Blue's beneficial interest in the Thackaringa Project will be increased in tranches on satisfaction of certain exploration and development milestones. When Cobalt Blue has completed its farm-in obligations, it will become the registered holder of the Thackaringa Project tenements. Broken Hill Prospecting remains the registered holder of the Thackaringa Project.

Potential to extend the Mineral Resource at Pyrite Hill, Big Hill, Railway and the other prospects is high. Numerous other prospects within COB's tenement package are at an early stage and under-explored.



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 also to join our newsletter mailing list at our website.

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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

- 11 September 2018: Cobalt Blue to investigate cobalt recovery at Rocklands Project
- 05 September 2018: Thackaringa TJV Completion of Stage 2 Earning Obligations
- 26 July 2018: CEO's Letter to Shareholders July 2018
- 04 July 2018: Thackaringa Pre Feasibility Study Announced
- 20 April 2018: Thackaringa JV Stage One Completed
- 19 March 2018: Thackaringa Significant Mineral Resource Upgrade
- 5 March 2018: PFS Calcine and Leach Testwork Complete Strong Results
- 24 January 2018: Significant Thackaringa Drilling Program complete Resource Upgrade pending
- 27 December 2017: PFS Bulk Metallurgical Testwork Progress Update
- 4 December 2017: Railway Drilling Program confirms grade continuity at depth and strike
- 26 October 2017: Bulk Metallurgical Testwork Strong Concentration Results
- 27 September 2017: CEO's Letter to Shareholders September 2017
- 12 July 2017: Scoping Study update Strong Potential for Commercialisation after Processing Testwork

COB confirms that the form and context in which the Competent Person's findings presented have not been materially modified from the original market announcement.

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

About Cobalt Blue Holdings Limited

Cobalt Blue (COB) is an exploration company focussed on green energy technology and a strategy of fast-tracking development of the Thackaringa Cobalt Project in New South Wales to achieve commercial production of cobalt. This strategic metal is in strong demand for new generation batteries, particularly lithium-ion batteries now widely used in clean energy systems.

COB has entered into a farm-in joint venture agreement with Broken Hill Prospecting Limited (ASX:BPL). COB will undertake exploration and development programs on the Thackaringa Cobalt Project and, subject to the achievement of milestones, will acquire 100% of the Thackaringa Cobalt Project.

Competent Person's Statement

The information in this report that relates to Exploration Targets, Exploration Results, Mineral Resources and Ore Reserves is based on information compiled by Mr Peter Buckley, a Competent Person who is a Member of The Australian Institute of Geoscientists (MAIG). Mr Buckley is employed by Left Field Geoscience Services and engaged by Cobalt Blue Holdings on a consulting basis. Mr Buckley 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 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Buckley consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.



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 Nature and quality of sampling **Diamond Drilling (DDH)** Sampling (e.g. cut channels, random techniques Pre-1990 chips, or specific specialised Diamond drilling was used to obtain core from which irregular industry standard measurement intervals, reflecting visual mineralisation and geological logging tools appropriate to the minerals were hand-split or sawn. Samples were submitted for analysis under investigation, such as using a mixed acid digestion and AAS methodology. down-hole gamma sondes, or Post-1990 handheld XRF instruments, etc). Diamond drilling (one drill hole) was used to obtain core from which These examples should not irregular intervals, reflecting visual mineralisation and geological be taken as limiting the broad logging were sawn (quarter core for HQ). Samples were submitted meaning of sampling. for analysis using a mixed acid digestion and ICP-OES methodology. Include reference to measures Metallurgical Drilling taken to ensure sample repre-Eight (8) HQ diameter diamond drill holes (DDH) were drilled at the sentivity and the appropriate Thackaringa project in late 2016. They were used as metallurgical calibration of any measurement reference holes and were designed to twin some of the previous tools or systems used. reverse circulation percussion (RC) holes for QA/QC and assay Aspects of the determination of comparison between DDH and RC. There were two (2) holes mineralisation that are Material drilled at Pyrite Hill, two (2) at Big Hill and four (4) at Railway: to the Public Report. Diamond drilling was used to obtain core from which regular In cases where 'industry (one-metre) intervals were sawn with: standard' work has been done one half core dispatched for analysis using a mixed acid this would be relatively simple digestion and ICP-MS methodology (sulphur >10% by LECO); (e.g. 'reverse circulation drilling the other half was further sawn such that one guarter-core was used to obtain 1 m samples was sent for metallurgical test work and the other quarter-core from which 3 kg was pulverised retained for archival purposes. to produce a 30 g charge for fire assay'). In other cases more **2017 Resource Drilling Program** explanation may be required, Fourteen HQ diameter diamond drill holes (DDH) were completed such as where there is coarse and assayed. They were used as metallurgical reference holes gold that has inherent sampling designed to twin some historical reverse circulation percussion problems. Unusual commodities (RC) holes for QA/QC and assay comparison between DDH and or mineralisation types (e.g. RC. There were four (4) holes drilled at Pyrite Hill, two (2) at Big submarine nodules) may Hill and eight (8) at Railway: warrant disclosure of detailed Diamond drilling (17THD01-03) was used to obtain core from information. which regular (one-metre) intervals were sawn with: one half core dispatched for analysis using a mixed acid digestion and ICP-MS methodology for a suite of 48 elements (sulphur >10% by LECO); the other half was retained for future metallurgical test work and archival purposes.

- Diamond drilling (17THD04-14) was used to obtain core from which regular (one-metre) intervals were sawn with:
 - one quarter core dispatched for analysis using a mixed acid digestion and ICP-MS methodology or a suite of 48 elements (sulphur >10% by LECO);
 - the other three quarters was retained for future metallurgical test work and archival purposes.

2017 Geotechnical Program

- Sixteen HQ diameter diamond drill holes (DDH) were completed and assayed. They were used as geotechnical reference holes designed to inform pit optimisation and mine design. There were four (4) holes drilled at Pyrite Hill, six (6) at Big Hill and six (6) at Railway:
 - Diamond drilling (17THD016-24, 26-28) was used to obtain core from which regular (one-metre) intervals were sawn with:



Criteria	JORC Code Explanation		Commentary		
Sampling techniques (continued)		1	 one half core dispatched for analysis using digestion and ICP-MS methodology for a elements (sulphur >10% by LECO); 	•	
(containaca)			the other half was retained for future meta work and archival purposes.	llurgical test	
		1	Intervals selected for sampling were derived geological logging and as such drill holes 1 and 31 were not sampled as they did not in mineralised envelope.	7THD015, 29	
		Historica	Reverse Circulation Drilling		
		 RC d of riffl 	rilling was used to obtain a representative san e splitting with samples submitted for analysis e-mentioned methodologies.		
		suite samp	000 drill samples were assayed for a small an of elements (sometimes only cobalt). The pos les (5,095 samples) are all assayed by ICP-M ements.	t-2000 drill	
		2017 RC [Prilling Program		
		 Ninet diamo suppo (65) h 	y-three (93) RC drill holes and three (3) RC drill ond tails were drilled and assayed to infill histo ort re-estimation of Mineral Resources. There we oles drilled at Railway, six (6) at Big Hill and tw rite Hill:	rical holes and were sixty-five	
	r	RC drilling was used to obtain a representative sample by means of riffle splitting with samples submitted for analysis by ICP-MS for a suite of 48 elements (sulphur >10% by LECO).			
Drilling techniques	Drill type (e.g. core, reverse circulation, open-hole hammer, rotary air blast, auger, Bangka, sonic, etc) and details (e.g. 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).	 (64) c (three nantly with <i>I</i> to an detail depension of the stance Since tube at an of the stance 	hackaringa drilling database comprises a total iamond drill holes and 139 reverse circulation (of which have diamond tails). Diamond drilling completed with standard diameter, convention istorical holes typically utilising RC and percus average 25 metres (see Drill hole Information for s). Early (1960-1970) drill holes utilised HX – AX ndent on drilling depth. Reverse circulation drill ard hole diameters (4.8"-5.5") with a face sample 2013 all diamond drilling has been completer system with a HQ3 diameter. Drill holes were figles between 40 and 60 degrees from horizor ing core was oriented as part of the logging p	RC) drill holes was predomi- nal HQ and NC sion pre-collars or further (diameters ing utilised obling hammer. d using a triple typically drilled ttal and the	
		Year	Drilling	Metres	
		1967	1 diamond drill hole	304.2	
		1970	4 diamond drill holes	496.6	
		1980	18 diamond and 1 RC drill hole	1,711.23	
		1993	2 diamond drill holes	250	
		1998	11 RC drill holes	1,093.25	
		2011	11 RC drill holes	1,811	
		2012	20 RC drill holes	2,874.25	
		2013	1 diamond drill hole	349.2	
		2016	8 diamond drill holes	1,511.8	
		2017	30 diamond drill holes, 93 RC drill holes, 3 RC drill holes with diamond tails	18,933	
		Total	64 diamond, 136 RC drill holes and 3 RC drill holes with diamond tails	29,334.53	



Criteria	JORC Code Explanation			Commentary	commentary				
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 Diamond Drilling Historical core recoveries were accurately quantified the measurement of actual core recovered versus drilled in: Historical diamond drilling employed conventional drilling niques while diamond drilling completed by Broken Hill F and Cobalt Blue Holdings utilised a triple-tube system to sample recovery and there sample courred due Core recovery of 99.7% was achieved during complete during the 2010 drilling program. 							
Logging	 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. Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography. The total length and percentage of the relevant intersections logged. 	 entirety. conside and me alteratic qualitati Diamon Prospec logging (RQD), During 2 re-logge as well percuss drill hole 	This logging have red to accurate tallurgical studie on, mineralisatio ve and quantita d drilling complecting/Cobalt Blu with parameter fracture frequer 2013, a considered through revise the re-interpreta-	eted during 2016 ue Holdings has b rs recorded includincy and hardness erable amount of ew of available co ation of historical o longer exist. A to 16) diamond drill	ed to a level o al Resource es ers logged incl These parame 6-2017 by Bro been subject to ding rock-qual a. historical drilli ore stored at E reports where otal of eight (8	f detail stimation ude lithology, eters are both oken Hill o geotechnical lity designation ng was Broken Hill o core or B) diamond			
		Hole ID	Deposit	Max Depth	Hole Type	Depth (m)			
		67TH01	Pyrite Hill	304.2	DDH	-			
		70TH02	Pyrite Hill	148.6	DDH	_			
		70TH03	Pyrite Hill	141.4	DDH	_			
		70BH01	Big Hill	102.7	DDH	_			
		70BH02	Big Hill	103.9	DDH				
		80PYH13	Pyrite Hill	77	DDH	_			
		80PYH14	Pyrite Hill	300.3	DDH	_			
		80BGH09	Big Hill	100.5	DDH	_			
		80PYH01	Pyrite Hill	24.53	PDDH	6			
		80PYH02	Pyrite Hill	51.3	PDDH	33.58			
			Durita Lill	EE	ווססס	20.7			

80PYH04

Pyrite Hill

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PDDH

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38.7



Criteria	JORC Code Explanation	Commentary						
Logging (continued)		Hole ID	Deposit	Max Depth	Hole Type	Pre-Colla Depth (m		
		80PYH05	Pyrite Hill	93.6	PDDH	18		
		80PYH06	Pyrite Hill	85.5	PDDH	18		
		80PYH07	Pyrite Hill	94.5	PDDH	12		
		80PYH08	Pyrite Hill	110	PDDH	8		
		80PYH09	Pyrite Hill	100.5	PDDH	8		
		80PYH10	Pyrite Hill	145.3	PDDH	25.5		
		80PYH11	Pyrite Hill	103.1	PDDH	18		
		80PYH12	Pyrite Hill	109.5	PDDH	4.2		
		80BGH05	Big Hill	54.86	RCDDH	45.5		
		80BGH06	Big Hill	68.04	RCDDH	58		
		80BGH08	Big Hill	79.7	RCDDH	69.9		
		93MGM01	Pyrite Hill	70	RDDH	24		
		93MGM02	Pyrite Hill	180	RDDH	48		
		RCDDH Diar RDDH Diar RC Rev Litho-ge where a post 20 Represe	nond drill hole wit mond drill hole wit rerse Circulation d eochemistry ha vailable for drill 10. entative referen completed posi	h percussion pre-co h reverse circulation h rotary air blast pre- rill hole s been used to to ing completed b ce trays of chips c 2010 have bee	n pre-collar e-collar verify geologic by Broken Hill s from reverse	Prospectine circulation		
Sub-sampling techniques and sample preparation	 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, 	historica split wa	mples were ha al core (see Lo g s typical. The v	nd-split or sawn g ging) indicating	a 70:30 (retai			
	 Por all outputs of properties and option 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. 	 It is con unlikely Procedu are not the periodic Post-1990 NQ drilli HQ drilli No secondic It is con unlikely Procedu are not the periodic 2016 Metall 	ond half sample sidered water u to have introdu ures relating to available. It is e od was applied ng core was sa ond half sample sidered water u to have introdu ures relating to available. It is e od was applied urgical Drilling	e sub-sampling so were submitte used for core cur iced sample core the definition of xpected that 'st to maximize sa awn with half core awn with quarter so were submitte used for core cur iced sample core the definition of xpected that 'st to maximise sa	technique (ha ed for analysis tting is unproc itamination. the line of cutt andard indust mple represer re submitted for core submitted ed for analysis tting is unproc itamination. the line of cutt andard indust mple represer	d are consic nd-splitting		
	 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 	 It is con unlikely Procedu are not the periodical Post-1990 NQ drilli HQ drilli HQ drilli No seccondition It is con unlikely Procedu are not the periodical All HQ contoriori 	ond half sample sidered water u to have introdu ures relating to available. It is e od was applied ng core was sa ond half sample sidered water u to have introdu ures relating to available. It is e od was applied urgical Drilling drill core was sa de 4 lengths of	e sub-sampling as were submitte used for core cu- iced sample cor the definition of xpected that 'st to maximize sa awn with half cor awn with quarter as were submitte- used for core cu- iced sample cor the definition of xpected that 'st to maximise sa	technique (ha ad for analysis tting is unproc itamination. the line of cutt andard indust mple represer re submitted for core submitted ad for analysis tting is unproc itamination. the line of cutt andard indust mple represer with each half	d are consid nd-splitting wessed and ting or split ry practice' ntivity. or assay. ed for assay. ed for assay. wessed and ting or split ry practice' ntivity.		



Criteria	JORC Code Explanation	Commentary
Sub-sampling techniques and sample	:	
preparation (continued)		
	2	017 Diamond Drilling
		All HQ drill core was sawn into halves, with each half then re-sawn to provide 4 lengths of quarter core for each interval.
		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.
	F	Reverse Circulation (RC) Drilling
		Sub-sampling of reverse circulation chips was achieved using a riffle splitter.
		During drilling operations, the splitter was regularly cleaned to prevent down hole sample contamination.
		Dry sampling was achieved with the use of adequate air, using a compressor and booster, where groundwater was encountered.
	F	listorical Reverse Circulation Drilling
		During reverse circulation drilling completed by Broken Hill Prospecting, duplicate samples were collected at the time of drilling. These were obtained by spearing the bulk material held in the PVC sacks using a spear made of 40mm diameter PVC pipe; three samples were speared through the full depth of the bulk material and these were combined to form one sample.
		Statistical analysis of field duplicates collected during drilling completed by Broken Hill Prospecting (119 duplicates representing 86% of all field duplicates) considered 18 elements of which only chromium, lanthanum and titanium show some bias in the duplicate samples. For cobalt, the confidence limits were evenly placed either side of zero and the duplicates are deemed to be representative of the original samples.
	2	017 Reverse Circulation Drilling
		 During reverse circulation drilling completed by Broken Hill Prospecting/Cobalt Blue Holdings, 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.
		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.



Criteria	JORC Code Explanation	Commentary								
Sub-sampling techniques		Mean percent difference assay values of field duplicate pairs collected during the 2017 reverse circulation drilling								
and sample preparation		Co Cut	t-Off	Sample Count	Cobalt MPD	Sulphur MPD	Iron MPD			
(continued)		All		630	12%	14%	8%			
(/		500ppi	m	170	10%	10%	7%			
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 (e.g. standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (i.e. lack of bias) and precision have been established. 	 en revires The review and fou dig cool All lat du (A All du WM Pri pri Acc qu (in Qu de review at Int du da 	nploye verse of spectiv- ne assa- verse of ad AAS r the ta- gestion balt ar l samp porator LS), Ar l samp uring 21 ales. A rospec cocceditu- ality si- coccesse cocceditu- ality si- coccesse cocceditu- sults, C an ave ternal l uring th atabase	re and quality of d for samples of circulation) are co re periods. ay techniques er circulation) includ finishes. These argeted mineralis technique with halyses. les have been p ries including AM halabs and Gena les from drilling of D11–2012 were all samples from ting and Cobalt ed at ALS Adelai ed Laboratory al ystems. ALS als g analysis of stal rocedures increa d drilling program CRM standards we te 2016-2017 dr e includes the la 2017 at an aver	otained throu onsidered 'ind nployed for d de mixed acid methods are sation and reg resistive pha rocessed at in IDEL, Austral alysis. completed by assayed at A drilling compl Blue Holdings ide, South Au nd qualifies fo o maintains ir ndards, repea ased during th s. To monito were included 4. ere routinely ir illing program b standards f	gh drilling (diam dustry standard rilling (diamond l digestion with considered ap garded as a 'nei ses not expecte ndependent con ian Laboratory r Broken Hill Pro LS in Orange, N eted by Broker s dring 2016-2 stralia. ALS is a or JAS/ANZ ISC nternal QAQC p ats and blanks). ne 2016–2017 i r the accuracy of d in the assay si ncluded by ALS n. The Thackarin or all drilling con	and and ' for the and ICP-OES propriate ar total' ed to affect mmercial Services ospecting New South Hill 2017 were a NATA 09001:2008 rocedures resource of assay ample stream & Laboratories nga drilling			

2016-2017 CRM standard assay performance for cobalt, iron and sulphur

			Col	balt			Sul	ohur			Ire	on	
Standard ID	Count	1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD
OREAS 523 (728 ppm Co)	72	59	12	1	-	61	11	_	_	53	18	1	-
OREAS 521 (386 ppm Co)	61	49	10	1	1	50	10	1	_	53	7	1	-
OREAS 166 (1970 ppm Co)	128	103	24	_	1	19	22	19	68	67	7	52	2
OREAS 165 (2445 ppm Co)	120	102	17	_	1	15	36	38	31	74	38	7	1
OREAS 163 (230 ppm Co)	140	110	25	4	1	4	6	14	116	23	91	24	2
OREAS 162 (631 ppm Co)	152	114	33	5	-	32	41	33	46	108	37	7	-
OREAS 160 (2.8 ppm Co)	121	104	10	2	5	40	49	30	2	83	-	_	38



Crite20147 lab standard. LSBAC perioden Excel for actional t, iron and sulphur as recorded in the Thackaminge database from October 2017

			Col	palt			Sul	phur			ir	on	
Standard ID	Count	1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD	1SD	2SD	3SD	+3SD
OREAS 902 (926 ppm Co)	125	39	51	28	7	114	11	_	-	86	31	8	-
OREAS 601 (5.14 ppm Co)	220	199	15	4	2	197	23	_	-	182	35	3	-
OREAS 24b (16.9 ppm Co)	439	288	142	8	1	282	123	31	3	382	27	30	-
OGGeo08 (100 ppm Co)	219	152	63	4	-	208	11	_	-	202	17	_	-
MRGeo08 (19.5 ppm Co)	222	172	47	2	1	144	78	-	_	18	52	99	53
GBM915-8 (1082 ppm Co)	127	110	17	_	_	_	_	_	_	_	_	_	_
GBM908-10 (27 ppm Co)	223	222	_	1	_	_	_	_	_	_	_	_	_

Criteria	JORC Code Explanation	Commentary								
Quality of assay data and laboratory		• 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.								
tests (continued)		Mean	percent difference a during the 2017 dri							
		Co Cut-Off	Sample Count	Cobalt MPD	Sulphur MPD	Iron MPD				
		All	715 (637) ¹	3%	3%	2%				
		500ppm	179 (102) ¹	2%	2%	2%				
Verification of sampling and assaying	 The verification of significant intersections by either inde- pendent 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. 	 employ Centra Prospet The Tr Micros holes i (typica assays Historia re-form Quanti captur validat Sampli detect All sigr 	cal drilling intersec yed by previous ex l Austin Pty Limite acting has complet ackaringa drilling of oft Access databa s stored in digital f lly including locatio and petrology). cal drilling data avai hatted and imported tative historical dril ed electronically dri ion completed by l es returning assay on limit values in the inficant intersection ation Manager and	plorers includ d and Hunter and Auster database exis se. Information iles as extraction plan, section ailable in election ad into the dri illing data, incurring systema Broken Hill Pro- s below deter he database. as are verified	ding CRAE Pty L Resources. Bro atic review of the sts in electronic on related to ind ted from historic on, logs, photos tronic form has I lling database. Iuding assays, h atic data compile ospecting. ction limits are a	Limited, oken Hill e related data. form as a lividual drill cal reports c, surveys, been have been ation and assigned half				
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. 	 ential C the post During holes a was lo georefit the col Down post 2 estima was no All 201 DGPS 	cal drill collars have GPS (DGPS). In the sition has been der systematic data v at Big Hill were fou cated and surveye erenced historical lars had been des hole surveys using 000 drilling. Down ted from hole trace of reported. 6 -2017 drill hole of by an independen n in horizontal and	instances while instances while instances while instances while incomended by GPS and plans (reported troyed. I digital came hole surveys and section collars were lease to survey or with the survey of the survey	here no collar co preferenced histo apleted in 2016, irrectly located. d two were digit ed to the neares ras were comple for some earlier data where raw pocated and surv th reported accu	uld be located prical plans. three (3) drill One collar tised from t metre) as eted on all drilling were v survey data reyed with				



Criteria	JORC Code Explanation	Commentary
Location of data points (continued)		 All FY2018 drill hole collars presented in this release 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 on all FY2017/18 drill-holes. All data is recorded in the GDA94 datum; UTM Zone 54 (MGA54). 3D validation of drilling data has been completed by independent geological consultants to support detailed geological modelling in Micromine[™] software. The quality of topographic control is deemed adequate in consideration of the results presented in this release.
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 FY2018 drilling program. 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 Drilling density is also illustrated in drilling plans presented within this release 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
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. 	 The 2016–2017 drill holes at the Thackaringa project were 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. Following recent drilling completed by Broken Hill Prospecting/ Cobalt Blue Holdings, samples were trucked 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.



Criteria	JORC Code Explanation		Commentary
Audits or reviews	 The results of any audits or reviews of sampling techniques 	•	In late 2016 an independent validation of the Thackaringa drilling database was completed:
	and data.		 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 (Criteria listed in the preceding section also apply to this section.)

Criteria		JORC Code Explanation		Commentary							
Mineral tenement and land	•	Type, reference name/number, location and ownership including agreements or material	•	25 kilometre	ringa Cobalt proje as west-southwes ints with a total ar	t of Broken Hill a					
tenure status		issues with third parties such as joint ventures, partnerships,	Tenement	Grant Date	Expiry Date						
	overriding royalties, native title interests, historical sites, wilderness or national park and		EL6622	30/08/2006	30/08/2020						
			EL 8143	26/07/2013	26/07/2020						
		environmental settings.		ML86	05/11/1975	05/11/2022					
	•	The security of the tenure held		ML87	05/11/1975	05/11/2022					
		at the time of reporting along with any known impediments to obtaining a licence to operate in the area.	•	Cobalt Blue Limited (BPI		(COB) and Brok his agreement is	ken Hill Prospecting s detailed in the COB				
			•	 The nearest residence (Thackaringa Station) is located approxi- mately three kilometres west of EL6622. 							
			•		ansected by the ⁻ ocated the north		Railway; the Barrier oundaries.				
			•	Lease which However, Na Traditional C	n is considered to ative Title Determi Owners 8) is currer	extinguish nativ nation NC97/32 nt over the area					
			•								
			•		ny is not aware of oerate in the area.		its to obtaining a				
Exploration done by other parties	•	Acknowledgment and appraisal of exploration by other parties.	•	undertaken the JORC Ta		2016 drilling prog s part of the Co	tion activities gram is appended to balt Blue Prospectus				



Criteria	JORC Code Explanation	Commentary
Geology	Deposit type, geological setting and style of mineralisation.	 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 BPL Limited has been focused on the discovery of cobaltiferous pyrite deposits and Broken Hill type base-metal mineralisation both of which are known from historical exploration in the district. 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 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 stratabound 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. The regional geological setting in
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 	See drill holle summaries below.



Drill hole summaries

Hole ID	Deposit	Max Depth (m)	NAT Grid ID	Easting	Northing	RL	Dip	Azimuth	Hole Type	Pre-Collar Depth
67TH01	Pyrite Hill	304.2	MGA94_54	518565	6449460	281	-55	261	DDH	Doptil
70TH02	Pyrite Hill	148.6	MGA94_54	518272	6449681	284	-61	219	DDH	
70TH03	Pyrite Hill	141.4	MGA94_54	518450	6449212	290	-62	284	DDH	
		102.7	MGA94_54			285	-47	319	DDH	
70BH01	Big Hill			520851	6449309				DDH	
70BH02	Big Hill	103.9	MGA94_54	520786	6449264	280	-50	319		
BOPYH13	Pyrite Hill	77	MGA94_54	518358	6449038	290	-50	281	DDH	
80PYH14	Pyrite Hill	300.3	MGA94_54	518661	6449288	278	-60	281	DDH	00
BOPYHO3	Pyrite Hill	35	MGA94_54	518252	6449570	299	-60	221	PDDH	22
BOBGH09	Big Hill	100.5	MGA94_54	520657	6449293	273	-50	145	DDH	C
BOPYHO1	Pyrite Hill	24.53	MGA94_54	518246	6449566	301	-60	203	PDDH	6
BOPYHO2	Pyrite Hill	51.3	MGA94_54	518261	6449574	298	-60	221	PDDH	33.58
BOPYHO4	Pyrite Hill	55	MGA94_54	518367	6449232	308	-60	296	PDDH	38.7
BOPYHO5	Pyrite Hill	93.6	MGA94_54	518227	6449678	285	-49	223	PDDH	18
BOPYHO6	Pyrite Hill	85.5	MGA94_54	518163	6449757	284	-54.4	223	PDDH	18
BOPYHO7	Pyrite Hill	94.5	MGA94_54	518084	6449818	285	-55	223	PDDH	12
30PYH08	Pyrite Hill	110	MGA94_54	518010	6449885	286	-60	223	PDDH	8
BOPYHO9	Pyrite Hill	100.5	MGA94_54	517917	6449932	287	-48.5	223	PDDH	8
30PYH10	Pyrite Hill	145.3	MGA94_54	518393	6449566	286	-50	223	PDDH	25.5
BOPYH11	Pyrite Hill	103.1	MGA94_54	518441	6449330	297	-50	281	PDDH	18
BOPYH12	Pyrite Hill	109.5	MGA94_54	518407	6449137	293	-50	281	PDDH	4.2
30BGH05	Big Hill	54.86	MGA94_54	520955	6449534	289	-60	164	RCDDH	45.5
98TC01	Railway	100	MGA94_54	522750	6451340	267	-60	159	RC	
98TC02	Railway	100	MGA94_54	522392	6451387	267	-60	141	RC	
98TC03	Big Hill	84	MGA94_54	520816	6449369	313	-60	136	RC	
98TC04	Big Hill	138.25	MGA94_54	520860	6449451	304	-60	141	RC	
98TC05	Big Hill	70	MGA94_54	520728	6449328	289	-50	123	RC	
98TC06	Big Hill	108	MGA94_54	520715	6449343	285	-60	126	RC	
98TC07	Big Hill	120	MGA94_54	520786	6449388	299	-50	134	RC	
98TC08	Big Hill	90	MGA94_54	520802	6449478	291	-60	151	RC	
98TC09	Big Hill	114	MGA94_54	520822	6449461	296	-60	134	RC	
98TC10	Big Hill	134	MGA94_54	521018	6449576	282	-50	173	RC	
98TC11	Railway	35	MGA94_54	522411	6451374	267	-60	133	RC	
30BGH06	Big Hill	68.04	MGA94_54	520880	6449472	299	-60	171	RCDDH	58
30BGH08	Big Hill	79.7	MGA94_54	520769	6449391	296	-60	127	RCDDH	69.9
30BGH07	Big Hill	23	MGA94_54	521137	6449599	274	-60	178	RC	
93MGM01	Pyrite Hill	70	MGA94_54	518185	6449714	286	-60	223	RDDH	24
93MGM02	Pyrite Hill	180	MGA94_54	518515	6449455	285	-60	259	RDDH	48
1PHR01	Pyrite Hill	150	MGA94_54	518435	6449073	285	-60	279	RC	
11PHR02	Pyrite Hill	198	MGA94_54	518500	6449159	284	-60	279	RC	
1PHR03	Pyrite Hill	240	MGA94_54	518560	6449190	280	-60	279	RC	
11PHR04	Pyrite Hill	186	MGA94_54	518529	6449257	284	-60	279	RC	
11PHR05	Pyrite Hill	234		518584	6449398	280	-60	259	RC	
1PHR06	Pyrite Hill	180		518491	6449523	284	-60	234	RC	
1PHR07	Pyrite Hill	174	 MGA94_54	518413	6449593	283	-60	219	RC	
1PHR08	Pyrite Hill	180	MGA94_54	518343	6449656	283	-60	218	RC	
11PSR01	Pyrite Hill	59	MGA94_54	518743	6448864	268	-60	258	RC	
11PSR02	Pyrite Hill	132	MGA94_54	518719	6448960	270	-60	255	RC	
11PSR03	Pyrite Hill	78	MGA94_54	518687	6449055	273	-60	255	RC	
2BER01	Railway	157	MGA94_54	521667	6449893	278	-60	141	RC	
2BER02	Railway	132	MGA94_54	521007	6449691	276	-60	162	RC	
12BER02	Railway	151	MGA94_54 MGA94_54	521213	6450435	289	-60	102	RC	
	nanway	131	MUA94_04	521019	0400400	203	-00	102	no	

DDH Diamond drill hole

PDDH Diamond drill hole with percussion pre-collar

RDDHDiamond drill hole with rotary air blast pre-collar**RC**Reverse Circulation drill hole

RC Rev

RCDDH Diamond drill hole with reverse circulation pre-collar

MARKET UPDATE



Drill hole summaries (continued)

		Max Depth								Pre-Collar
Hole ID	Deposit	(m)	NAT Grid ID	Easting	Northing	RL	Dip	Azimuth	Hole Type	Depth
12BER05	Railway	145	MGA94_54	522439	6451168	300	-60	124	RC	
12BER06	Railway	169	MGA94_54	522481	6451091	296	-60	118	RC	
12BER07	Railway	115	MGA94_54	522324	6450749	278	-60	144	RC	
12BER08	Railway	193	MGA94_54	522221	6450812	273	-60	129	RC	
12BER09	Railway	139.75	MGA94_54	522101	6450881	276	-60	129	RC	
12BER10	Railway	151	MGA94_54	521953	6450716	284	-60	129	RC	
12BER11	Railway	193	MGA94_54	522737	6451377	266	-60	153	RC	
12BER12	Railway	111	MGA94_54	522910	6451517	277	-60	153	RC	
12BER13	Railway	205	MGA94_54	522884	6451558	271	-60	156	RC	
12BER14	Railway	151	MGA94_54	523125	6451637	288	-60	152	RC	
12BER15	Railway	109	MGA94_54	523311	6451842	284	-60	152	RC	
12BER16		115		522994	6451592	276	-60	156	RC	
	Railway	115.5	MGA94_54			269	-60	153	RC	
12BER17	Railway		MGA94_54	522517	6451315					
12BER18	Railway	157 97	MGA94_54	522333	6451281	272	-60	129 135	RC RC	
12BER19	Railway		MGA94_54	522241	6451067	276	-60			
12BER20	Railway	120	MGA94_54	521292	6449734	277	-60	165	RC	
I 3BED01	Railway	349.2	MGA94_54	522480	6451092	296	-60	301	DDH	
16DM01	Pyrite Hill	161.6	MGA94_54	518411	6449594	283	-60	216	DDH	
16DM02	Pyrite Hill	183.4	MGA94_54	518527	6449262	284	-60	285	DDH	
16DM03	Big Hill	126.5	MGA94_54	521037	6449567	283	-60	159	DDH	
6DM04	Big Hill	105.4	MGA94_54	520815	6449464	296	-55	129	DDH	
6DM05	Railway	246.5	MGA94_54	522104	6450882	277	-60	129	DDH	
6DM06	Railway	160.4	MGA94_54	522912	6451519	279	-60	153	DDH	
6DM07	Railway	242.5	MGA94_54	522995	6451598	276	-60	156	DDH	
6DM08	Railway	258.5	MGA94_54	522351	6451273	274	-60	131	DDH	
17THD01	Pyrite Hill	124.2	MGA94_54	518382	6449551	289	-40	222	DDH	
7THD02	Pyrite Hill	149.7	MGA94_54	518475	6449445	291	-40	258	DDH	
17THD03	Pyrite Hill	78.5	MGA94_54	518370	6449190	303	-40	285	DDH	
17THD04	Big Hill	119.8	MGA94_54	521078	6449589	278	-45	155	DDH	
17THD05	Big Hill	99.5	MGA94_54	521669	6449889	279	-40	131	DDH	
7THD06	Railway	165.5	MGA94_54	521970	6450705	287	-45	128	DDH	
17THD07	Railway	274.6	MGA94_54	522569	6451282	271	-45	157	DDH	
7THD08	Railway	132.5	MGA94_54	522784	6451280	269	-45	326	DDH	
7THD09	Railway	120.5	MGA94_54	522905	6451511	278	-40	153	DDH	
7THD10	Railway	84.2	MGA94_54	522992	6451569	280	-45	130	DDH	
7THD11	Railway	111.5	MGA94_54	523109	6451682	281	-40	161	DDH	
7THD12	Railway	126.5	MGA94_54	522796	6451419	273	-40	141	DDH	
7THD13	Railway	105.5	MGA94_54	522836	6451456	277	-40	139	DDH	
7THD14	Pyrite Hill	99	MGA94_54	518375	6449089	294	-60	285	DDH	
7THR001	Railway	156	MGA94_54	522615	6451277	268	-60	120	RC	
7THR002	Railway	160	MGA94_54	522573	6451299	269	-60	120	RC	
7THR003	Railway	96	MGA94_54	522124	6450868	277	-60	130	RC	
7THR004	Railway	150		522387	6451319	271	-60	120	RC	
7THR005	Railway	72	MGA94_54	522024	6450783	282	-60	120	RC	
17THR006	Railway	114	MGA94_54	522049	6450780	284	-58	125	RC	
17THR007	Railway	180	MGA94_54	521965	6450699	287	-59	125	RC	
17THR008	Railway	132	MGA94_54	521905	6450562	292	-56	105	RC	
7THR000	Railway	120	MGA94_54	521917	6450496	292	-58	105	RC	
17THR009	Railway	72	MGA94_54 MGA94_54	521900	6450398	293	-56	285	RC	
17THR010	,	126	MGA94_54 MGA94_54	522302	6451169	200	-56	120	RC	
	Railway									
17THR012	Railway	180	MGA94_54	522440	6451304	275	-58	173	RC	

DDH Diamond drill hole

PDDH Diamond drill hole with percussion pre-collar

RDDHDiamond drill hole with rotary air blast pre-collar**RC**Reverse Circulation drill hole

RCDDH Diamond drill hole with reverse circulation pre-collar



Drill hole summaries (continued)

		Max Depth								Pre-Collar
Hole ID	Deposit	(m)	NAT Grid ID	Easting	Northing	RL	Dip	Azimuth	Hole Type	Depth
17THR013	Big Hill	102	MGA94_54	521750	6449942	285	-60	131	RC	
17THR014	Big Hill	104	MGA94_54	521628	6449796	278	-53	130	RC	
17THR015	Big Hill	108	MGA94_54	521793	6449918	285	-58	310	RC	
17THR016	Pyrite Hill	138	 MGA94_54	518446	6449209	290	-57	283	RC	
17THR017	Pyrite Hill	120	MGA94_54	518449	6449263	293	-56	282	RC	
17THR018	Pyrite Hill	78	MGA94_54	518027	6449806	290	-60	222	RC	
17THR019	Pyrite Hill	72	MGA94_54	518105	6449754	288	-55	222	RC	
17THR020	Pyrite Hill	66	MGA94_54	518166	6449695	289	-60	222	RC	
17THR021	Pyrite Hill	78	MGA94_54	518183	6449717	286	-60	222	RC	
17THR022	Pyrite Hill	156	MGA94_54	518510	6449306	287	-55	281	RC	
17THR023	Pyrite Hill	150	MGA94_54	518506	6449377	289	-57	265	RC	
17THR023	Pyrite Hill	150		518457	6449498	288	-59.5	205	RC	
			MGA94_54			287	-60	229	RC	
17THR025	Pyrite Hill	114	MGA94_54	518311	6449609					
17THR026	Pyrite Hill	114	MGA94_54	518268	6449681	284	-60	222	RC	
17THR027	Pyrite Hill	72	MGA94_54	518243	6449646	287	-60	222	RC	
17THR028	Railway	150	MGA94_54	522457	6451167	301	-60	350	RC	
17THR029	Railway	162	MGA94_54	522482	6451084	296	-60	175	RC	
17THR030	Railway	138	MGA94_54	522783	6451423	271	-55	140	RC	
17THR031	Railway	120	MGA94_54	522945	6451566	276	-55	145	RC	
17THR032	Railway	132	MGA94_54	522819	6451473	274	-53	140	RC	
17THR033	Railway	120	MGA94_54	522501	6451315	270	-60	175	RC	
17THR034	Railway	132	MGA94_54	522321	6451214	276	-55	127	RC	
17THR035	Railway	156	MGA94_54	522259	6451120	276	-55.2	130	RC	
17THR036	Railway	92	MGA94_54	522186	6450998	275	-61.2	130	RC	
17THR037	Railway	126	MGA94_54	522148	6450941	274	-55	126	RC	
17THR038	Railway	168	MGA94_54	521927	6450619	290	-55	108	RC	
17THD015	Railway	81.6	MGA94_54	522038	6450826	279	-80	304	DDH	
17THD016	Railway	176.9	MGA94_54	522089	6450774	287	-70	122	DDH	
17THD017	Railway	255.9	MGA94_54	522615	6451279	268	-80	350	DDH	
17THD018	Railway	72.5	MGA94_54	523013	6451491	295	-70	150	DDH	
17THD019	Railway	151.3	MGA94_54	522667	6451229	267	-70	140	DDH	
17THD020	Railway	121.7	MGA94_54	523052	6451545	290	-55	310	DDH	
17THD021	Big Hill	100	MGA94_54	521708	6449928	281	-50	133	DDH	
17THD022	Big Hill	70	MGA94_54	521618	6449729	278	-56	316	DDH	
17THD023	Big Hill	99.5	MGA94_54	521164	6449537	275	-55	337	DDH	
17THD024	Railway	69.6	MGA94_54	521164	6449536	275	-80	150	DDH	
17THD025	Pyrite Hill	24.2	MGA94_54	518588	6449334	281	-75	90	DDH	
17THD026	Pyrite Hill	240.7	MGA94_54	518586	6449334	281	-55	272	DDH	
17THD027	Big Hill	141.6	MGA94_54	520947	6449513	294	-75	130	DDH	
17THD028	Big Hill	171.7	MGA94_54	520862	6449317	285	-56	321	DDH	
17THD029	Pyrite Hill	200.5	MGA94_54	518489	6449338	290	-70	90	DDH	
17THD030	Pyrite Hill	201.5	MGA94_54	518351	6449706	281	-55	222	DDH	
17THD031	Pyrite Hill	229	MGA94_54	518289	6449629	287	-65	50	DDH	
17THR039	Railway	210	MGA94_54	522477	6451299	274	-55.8	168.7	RC	
17THR040	Railway	276	MGA94_54	522528	6451300	270	-55	164	RC	
17THR041	Railway	210	MGA94_54	522692	6451244	265	-55	339	RC	
17THR042	Railway	234	MGA94_54	522588	6451160	283	-55	336	RC	
17THR043	Railway	200	MGA94_54	522531	6451185	289	-55	341	RC	
17THR044	Railway	180	MGA94_54	522420	6451159	298	-55	311	RC	
17THR045	Railway	210	 MGA94_54	522526	6451168	290	-55	311	RC	
17THR046	Railway	216		522501	6451203	291	-56	311	RC	
			_							

DDH Diamond drill hole

PDDH Diamond drill hole with percussion pre-collar

RCDDH Diamond drill hole with reverse circulation pre-collar

RDDHDiamond drill hole with rotary air blast pre-collar**RC**Reverse Circulation drill hole



Drill hole summaries (continued)

		Max Depth								Pre-Collar
Hole ID	Deposit	(m)	NAT Grid ID	Easting	Northing	RL	Dip	Azimuth	Hole Type	Depth
17THR047	Railway	246	MGA94_54	522438	6451115	297	-55	311	RC	
17THR048	Railway	122	MGA94_54	522481	6451124	298	-55	310	RC	
17THR049	Railway	138	MGA94_54	522378	6451130	292	-55	310	RC	
17THR050	Railway	154	MGA94_54	522657	6451143	274	-63	344	RC	
17THR051	Railway	174	MGA94_54	522364	6451070	283	-55	308	RC	
17THR052	Railway	246	MGA94_54	522642	6451184	274	-55	334	RC	
17THR053	Railway	156	MGA94_54	522315	6451028	278	-55	314	RC	
17THR054	Railway	180	MGA94_54	522671	6451232	267	-60	333	RC	
17THR055	Railway	114	MGA94_54	522261	6450987	278	-55	313	RC	
17THR056	Railway	102	MGA94_54	522558	6451285	271	-55	158	RC	
17THR057	Railway	111	MGA94_54	522220	6450909	274	-55	308	RC	
17THR058	Railway	210	MGA94_54	522467	6451328	270	-55	160	RC	
17THR059	Railway	150	MGA94_54	522198	6450857	274	-55	306	RC	
17THR060	Railway	181	MGA94_54	523006	6451494	294	-55	331	RC	
17THR061	Railway	138	MGA94_54	522161	6450789	277	-55	307	RC	
17THR062	Railway	168	MGA94_54	522983	6451450	296	-60	327	RC	
17TRD063	Railway	169.5	MGA94_54	522903	6450725	280	-55	305	RCDDH	96.7
17THR064	Railway	171	MGA94_54	522931	6451403	295	-56.1	329	RC	90.7
17THR064	Railway	174	MGA94_54	522931	6450664	293	-55	329	RC	
17THR065	Railway	168	MGA94_54	522865	6451367	203	-60	318	RC	
		150	MGA94_54			292	-50	291	RC	
17THR067 17THR068	Railway		MGA94_54	522022	6450479				RC	
	Railway	210		522752	6451407	268	-60	148		
17THR069	Railway	96	MGA94_54	522008	6450647	301	-60	117	RC	
17THR070	Railway	228	MGA94_54	522813	6451242	266	-60	300	RC	
17THR071	Railway	142	MGA94_54	522070	6450846	279	-60	130	RC	155.0
17TRD072	Railway	210	MGA94_54	522623	6451044	271	-60	320	RCDDH	155.6
17TRD073	Railway	195.4	MGA94_54	522035	6450817	280	-55	126	RCDDH	134.9
17THR074	Railway	300	MGA94_54	522572	6450985	271	-60	310	RC	
17THR075	Railway	148	MGA94_54	522013	6450770	283	-55	121	RC	
17THR076	Railway	300	MGA94_54	522479	6450945	272	-60	355	RC	
17THR077	Railway	180	MGA94_54	521993	6450743	285	-55	117	RC	
17THR078	Pyrite Hill	157	MGA94_54	518220	6449774	281	-60	222	RC	
17THR079	Railway	120	MGA94_54	521912	6450597	289	-55	116	RC	
17THR080	Pyrite Hill	67	MGA94_54	518024	6449782	292	-55	190	RC	
17THR081	Railway	184	MGA94_54	522340	6451239	276	-55	125	RC	
17THR082	Pyrite Hill	67	MGA94_54	517972	6449842	290	-55	222	RC	
17THR083	Railway	156	MGA94_54	522365	6451282	274	-55	133	RC	
17THR084	Pyrite Hill	97	MGA94_54	518343	6449588	287	-55	205	RC	
17THR085	Big Hill	210	MGA94_54	520878	6449523	287	-60	141	RC	
17THR086	Pyrite Hill	157	MGA94_54	518427	6449541	287	-55	218	RC	
17THR087	Pyrite Hill	181	MGA94_54	518466	6449587	282	-60	218	RC	
17THR088	Pyrite Hill	175	MGA94_54	518392	6449633	282	-55	213	RC	
17THR089	Big Hill	108	MGA94_54	521571	6449709	274	-60	141	RC	
17THR090	Big Hill	96	MGA94_54	521692	6449794	284	-55	312	RC	
17THR091	Pyrite Hill	211	MGA94_54	518424	6449679	279	-55	219	RC	
17THR092	Pyrite Hill	139	MGA94_54	518301	6449661	285	-55	219	RC	
17THR093	Pyrite Hill	151	MGA94_54	518270	6449732	281	-55	219	RC	
17THR094	Pyrite Hill	240	MGA94_54	518568	6449501	279	-60	253	RC	
17THR095	Pyrite Hill	205	MGA94_54	518509	6449194	283	-55	273	RC	
			MGA94_54							

 DDH
 Diamond drill hole

 PDDH
 Diamond drill hole with percussion pre-collar

RDDHDiamond drill hole with rotary air blast pre-collar**RC**Reverse Circulation drill hole

RCDDH Diamond drill hole with reverse circulation pre-collar



Criteria	JORC Code Explanation	Commentary
Data aggregation methods	 In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade truncations (e.g. 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. 	 Drilling Drill hole intercept grades are typically 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 is selected to reflect the overall tenor of mineralisation, in most cases 500ppm cobalt. No top cuts have been applied when calculating average grades for reported significant intersections.
Relationship between mineralis- ation 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 drillhole 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 (e.g. '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 and 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. 	 No exploration results are reported in the release.



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 obser- vations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, ground- water, geotechnical and rock characteristics; potential deleterious or contaminating substances.	 No further exploration data is deemed material to the results presented in this release.
Further work	 The nature and scale of planned further work (e.g. 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. 	 The nature and scale of future work is outlined in the accompanying release.



Section 3 Estimation and Reporting of Mineral Resources (Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code Explanation		Commentary
Database integrity	 Measures taken to ensure that data has not been corrupted by, for example, transcription or keying errors, between its initial collection and its use for Mineral 	•	The Thackaringa drilling database exists in electronic form under the independent management of Maxwell GeoServices. The Maxwell Data Schema (MDS) strictly applies integrity to all downhole and measurement recordings. If data fails the integrity rules, the data is NOT loaded into the database.
	Resource estimation purposes.		In general, the following rules are applied:
	 Data validation procedures 		Downhole intervals Depth_To > Depth_From
	used.		 Downhole intervals < Max depth
			 No overlapping intervals
			Dips between -90 & 90°
			Azimuths, dip direction, alpha, beta are all between 0 & 360
			 Gamma between 0 & 90°
			 Individual percentage values <= 100%; total of all percentage values <= 100%
			Recovery values <= 110%; RQD values <= 100%
			 Incremental values must have data in preceding values before the next can be entered (e.g. Cannot have Lith2 unless Lith1 exists)
			 Cannot enter qualifiers unless the primary code is populated (e.g. Cannot have a Lith_Grainsize or a Lith_Colour unless Lith_Code is populated)
			 Dates <= current daily (load) date; start dates <= complete dates etc.
			 Codes for fields linked to corresponding library tables can only be loaded if they are set to Is_Active = 'TRUE' in the library table
			 Once drill holes, linear sites and point sites have been set to Validated = 'TRUE', no data related to these can be update inserted or deleted.
			 Once Load_Date and Loaded_By fields have been populate upon database loading these fields are unable to be modi- fied. Instead any updates are recorded in the Modified_Date and Modified_By fields.
			 A Data_Source field is required for ALL data tables
			Additionally, the MDS stores every instance (record) of data loading, data modification, and who loaded and modified that particular data, as well as data sources where appropriate. This makes the data loading process highly auditable.
			The database was extensively examined by SRK Consulting with various minor issues identified and addressed during the geological modelling and Mineral Resource estimation process. Examples of issues examined and rectified include:
			 Correct prioritisation of assay method where upper limits of detection are exceeded;
			 Inclusion / exclusion and quality of historic assays;
			 Use of correct downhole survey grid systems and survey prioritisation
			 Inclusion of up to date density information
			 Inclusion of up to date QAQC data including standards, duplicates, blanks and lab repeats



Criteria	JORC Code Explanation	Commentary
Site Visits	 Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the case. 	 The geological model used for the resource estimation has been developed by Dr Stuart Munroe of SRK Consulting in conjunction with other consultants and COB employees, following a review of previous mapping, over approximately nine days on site at the Thackaringa project during drilling in November 2017.
Geological interpretation	 Confidence in (or conversely, the uncertainty of) the geological interpretation of the mineral deposit. Nature of the data used and of any assumptions made. The effect, if any, of alternative interpretations on Mineral Resource estimation. 	The mineralisation at Thackaringa is well exposed at surface and forms prominent topographic highs. The mineralisation has been mapped by previous lease holders and presented in statutory annual reports which are in the public domain. The previous mapping has been compiled and re-mapped by Mr Garry Johansen for COB. Dr Stuart Munroe of SRK Consulting completed reconnaissance mapping and reviewed the controls on mineralisation in preparation for this resource estimate update. Confidence in the current geological model has been greatly improved by the drilling completed during 2017.
	 The use of geology in guiding and controlling Mineral Resource estimation. The factors affecting continuity both of grade and geology. 	The geological model has been developed from a good understanding of the distribution of surface mineralisation, observed controls on mineralisation and the extensive drill hole intersections. Two key structural controls on mineralisation are, (1); the primary foliation (bedding), as a fluid flow pathway and site for deposition of cobaltiferous pyrite, and (2); bedding parallel shear zones at the contact of quartz – albite gneiss. These shear zones appear to be responsible for fold thickening of the quartz – albite gneiss. Much of the folding appears to be slump or soft-sediment folding. The fold hinges have a variable plunge (moderate to steeply east to north-east).
		 No viable alternative mineralisation models have been developed. The mineralisation host is a quartz + albite + cobaltiferous pyrite gneiss. This rock is defined by the presence of disseminated pyrite, concentrated parallel to the primary foliation in a fine-grained, recrystalised quartz + albite groundmass. Where the pyrite is present there is an increase in the silica content and an almost complete absence of biotite and sericite. In addition to the logged geology, most of the drill holes have multi-element analysis. These data have been used to develop a lithogeochemical profile for each rock type logged. The lithogeochemistry, logged geology, structure at surface, Cobalt assay and Sulphur assay have all been used to guide the mineralised domain that contain the resource.
		The gradation from a biotite schist to (quartz + albite) to (pyrite + quartz + albite) suggests the sulphide may accompany silica + sodic alteration of a micaceous schist protolith. Across the shear zones mapped at surface, the transition is rapid, however where there is no shearing at the contact, a gradational contact from biotite to albite to pyrite + albite + silica is observed. Parallel to bedding and bedding parallel shear zones (faults), continuity of the mineralisation is strong, particularly close to the shear zones.
Dimensions	The extent and variability of the Mineral Resource expressed as length (along strike or otherwise), plan width, and depth below surface to the upper and lower limits of the Mineral Resource.	The Railway Big Hill portion of the deposit is approximately 3500m along strike, 350m down dip and between 20m and 300m across strike averaging around 70m across strike. This portion is partially a steeply dipping linear formation but with a complexly folded area to the North East. The linear portion is distinguished by a distinct high grade Western Hanging wall zone.
		 The Pyrite Hill portion of the deposit is an arc like formation some 1000m along strike, 300m down dip and between 10m and 100m across strike.



Criteria	JORC Code Explanation	Commentary
Estimation and modelling cechniques	 The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, 	 The wireframe geological modelling, database validation and compositing were carried out in the Leapfrog software package The estimation and classification were completed in the Isatis software package. The final model is presented in the Surpac software package.
	interpolation parameters and maximum distance of extrapola- tion from data points. If a computer assisted estimation method was chosen, include a description of computer software and	Three variables Co, Fe and S are highly correlated and have be Co-Kriged. Co-kriging involves simultaneous fitting of variogram models to the three main variables and to three cross variogram and simultaneous estimation accounting for the spatial continui of all three variables at once. This maintains the correlations between variable which are not necessarily honoured when independent kriging is performed.
	 parameters used. The availability of check estimates, previous estimates and/ or mine production records and 	The orientations of both variograms and search ellipses is varied a block by block basis. The orientations are controlled by the set of trend and fold wireframes. Each wireframe triangle centroid is assigned a dip and strike and these are estimated using a neare neighbour estimate into the blocks prior to grade estimation.
	whether the Mineral Resource estimate takes appropriate account of such data.	 Eleven domains are used all with hard boundaries to control geology, geometry and grade and ensure appropriate samples selected for estimation.
	 The assumptions made regarding recovery of by-products. 	 No top cuts or caps are used for any of the variables as the gradistributions are not highly skewed and the estimated validate without the need for cutting or capping.
	 Estimation of deleterious elements or other non-grade variables of economic signif- icance (e.g. sulphur for acid mine drainage characterisation). 	 Multivariate variography was completed for all domains with sufficient data. Given the folded nature of many of the domains and the use of local orientations, only two multivariate models were utilised for estimation. One for the Pyrite Hill domain and another for all of the remaining Big Hill and Railway domains.
	 In the case of block model interpolation, the block size in relation to the average sample spacing and the search employed. 	5m composites are used with residual short lengths being inco- porated and redistributed such that final composite lengths ma be slightly shorter and longer than 5m. This length was chosen to be consistent with the 5m x 10m x 10m block dimensions a the assumed bulk mining approach.
	 Any assumptions behind modelling of selective mining units. Any assumptions about 	 Estimation utilised a single pass approach with interpolation enc extrapolation limited by both optimum sample numbers controlle by sectors and by overall search ellipse distances. Search distances are anisotropic to the ratios of the search ellipse (5:1 cross strike, 1:1 down dip), that is samples are selected / prior-
	 correlation between variables. Description of how the geolog- ical interpretation was used to control the resource estimates. 	itised within successively larger ellipses rather than by spherical distances. A minimum of 4 samples, an optimum of 8 composite and a maximum of 16 composites was used. A higher sample search with an optimum of 32 composites and maximum of 64 was tested maximising the regression slopes and smoothing the estimate but this excessively smoothed the block distribution an
	 Discussion of basis for using or not using grade cutting or capping. 	 did not reflect the true block variability. Block size used is 5m in Easting, 10m in Northing and 10m in
	 The process of validation, the checking process used, the comparison of model data to drillhole data, and use of 	elevation. This compares to an average drill spacing of betwee 25m and 60m along strike with average sample lengths of 1m combined with variogram ranges between 115m and 160m alo strike, 70m to 80m down dip and 18m to 40m across strike. Variography shown moderate to low nuggets effect.
	reconciliation data if available.	 Validation was completed by: statistical comparisons to declustered composite averages per domain at zero cut off
		 statistical inspection of density, regression slopes, kriging efficiency, number of composites used visual imposition of grades, regression slopes, kriging
		 visual inspection of grades, regression slopes, kriging efficiency, number of composites used Comparison of grades and tonnages above cut off to
		previous estimatesSwath plots
		 Global change of support checks Maximum extrapolation for Inferred material is approximately 120m and averages around 80m.

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Criteria	JORC Code Explanation	Commentary			
Moisture	 Whether the tonnages are estimated on a dry basis or with natural moisture, and the method of determination of the moisture content. 	 Tonnage and assays are on a dry basis. 			
Cut-off parameters	 The basis of the adopted cut-off grade(s) or quality parameters applied. 	 The Mineral Resource has been reported at a cut-off of 500ppm cobalt to appropriately reflect the tonnes and grade of estimated blocks that will meet the potential beneficiation process currently under consideration. The reported Mineral Resource includes only material categorised as 'sulphide'; constrained by the modelled 'base of partial weathering' surface. A complete review of modifying factors identified during the PFS has supported derivation of an economic cut-off grade reflective of the proposed product stream. This cut-off is further detailed in the body of this release SRK is unaware of any other similar style of deposit that is at surface and amenable to open cut mining. 			
Mining factors or assumptions	Assumptions made regarding possible mining methods, minimum mining dimensions and internal (or, if applicable, external) mining dilution. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential mining methods, but the assumptions made regarding mining methods and parameters when estimating Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the mining assumptions made.	 Open pit mining is assumed as the deposits outcrop at surface. Preliminary pit optimisations were completed for the Scoping Study using the preceding Mineral Resource estimates. These optimisations supported an open pit mining methodology with near surface resources indicating low strip ratios. Revised pit optimisations were completed during the Preliminary Feasibility Study with all material modifying factors and assump- tions outlined in the body of the release and further described in Section 4 Estimation and Reporting of Ore Reserves. 			
Metallurgical factors or assumptions	The basis for assumptions or predictions regarding metallurgical amenability. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider potential metallurgical methods, but the assumptions regarding metallurgical treatment processes and parameters made when reporting Mineral Resources may not always be rigorous. Where this is the case, this should be reported with an explanation of the basis of the metallurgical assumptions made.	 Detailed metallurgical studies completed for the Preliminary Feasibility Study have examined a processing pathway comprising four primary stages of ore treatment: Concentrate: Preparation of a sulphide concentrate from the ore Calcine: Calcination (thermal treatment) of the concentrate Leaching: Leaching of the calcine Product Recovery: purification of leach liquor, followed by crystallisation of cobalt sulphate Results from test work related to the stages above are summa- rised in the body of the release and further described in Section 4 Estimation and Reporting of Ore Reserves. Further work examining finer grind sizing was then conducted. Results indicated that varying the particle size down to 425um permitted 94% recovery of cobalt to concentrate. 			



Criteria	JORC Code Explanation	Commentary
Environ- mental factors or assumptions	Assumptions made regarding possible waste and process residue disposal options. It is always necessary as part of the process of determining reasonable prospects for eventual economic extraction to consider the potential environmental impacts of the mining and processing operation. While at this stage the determination of potential environmental impacts, particularly for a greenfields project, may not always be well advanced, the status of early consideration of these potential environmental impacts should be reported. Where these aspects have not been considered this should be reported with an explanation of the environmental assumptions made.	 In acid mine drainage terms, both economic and waste material contain significant amounts potentially acid forming materials (Pyrite and sulphur bearing minerals > 0.05% Sulphur). Sulphur has been estimated in both the Resource and waste material where information is available. A background S value of 0.05% S has been included where no assay information is available and where expected lithology types are typically below the 0.05% S value. Additional environmental factors and assumptions are outlined in the body of the release and further described in Section 4 Estimation and Reporting of Ore Reserves.
Bulk density	 Whether assumed or determined. If assumed, the basis for the assumptions. If determined, the method used, whether wet or dry, the frequency of the measurements, the nature, size and representativeness of the samples. The bulk density for bulk material must have been measured by methods that adequately account for void spaces (vugs, porosity, etc.), moisture and differences between rock and alteration zones within the deposit. Discuss assumptions for bulk density estimates used in the evaluation process of the different materials. 	 Bulk density has been determined using the Archimedes method (weigh in water weight in air). Some 1527 core samples between 1.2m and 0.1m from across the deposit have been utilised. These samples are examined statistically to eliminate errors and outliers. The valid samples are then matched with the Co, Fe and S assay values for their respective intervals. Good linear regressions are obtained with all three elements. The final densities are assigned on a block by block basis using a linear regression derived from the combined Co Fe and S assays. The regression equation is: Bulk density = 0.0143*(Co ppm /10000 + Fe % + S %) + 2.5722
Classification	 The basis for the classification of the Mineral Resources into varying confidence categories. Whether appropriate account has been taken of all relevant factors (i.e. relative confidence in tonnage/grade estimations, reliability of input data, confidence in continuity of geology and metal values, quality, quantity and distribution of the data). Whether the result appropriately reflects the Competent Person's view of the deposit. 	 Classification is based on the kriging regression slope with class surfaces created from viewing the regression slopes of the estimated blocks in section. Indicated is defined as all material above the 0.5 kriging regression slope surface and lnferred as all material above the 0 kriging regression slope surface and below the 0.5 kriging regression slope surface. There is some Indicated material near surface that has regression slopes less than 0.5 and this is included as Indicated due to the known mapped outcrop at surface. In addition to this, depth limits have been applied to Big Hill and Railway at 150m RL (approximately 100m below surface) and 50m RL (approximately 150m below surface) respectively. These correspond to the approximate pit base of preliminary optimisations completed for the Scoping Study using the preceding Mineral Resource estimates.



Criteria	JORC Code Explanation	Commentary
Audits or reviews	 The results of any audits or reviews of Mineral Resource estimates. 	 No audits or external reviews of this Resource have been completed to date.
Discussion of relative accuracy/ confidence	 Where appropriate, a statement of the relative accuracy and confidence level in the Mineral Resource estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the resource within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors that could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonnages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available. 	 Accuracy and confidence in the estimation is expressed by the Indicated and Inferred classification applied. No additional confidence measures have been estimated or applied. Global change of support calculations indicate that the estimate still contains an amount of smoothing that may be underestimating the grade and overestimating the tonnage above 500ppm in the order of 5% to 10%. The current estimate is therefore a compromise between local block and global grade and tonnage accuracy which is considered appropriate in the competent persons view and experience. No mining or production has taken place.



Section 4 Estimation and Reporting of Ore Reserves (Criteria listed in the preceding section also apply to this section.)

Criteria	JORC Code Explanation	Commentary
Mineral Resource estimate for conversion to Ore Reserves	 Description of the Mineral Resource estimate used as a basis for the conversion to an Ore Reserve. Clear statement as to whether the mineral Resources are reported additional to, or inclusive of, the Ore Reserves. 	 The Mineral Resources are reported inclusive of the Mineral Resources used to define the Ore Reserves. Two sub-celled Mineral Resource block models were used as the basis of the work. The models encompass the three deposits in the TCP. The models are: 'ph2018_extended_3.mdl' and 'rwbh2018_13032018_new.mdl' These models were produced by Danny Kentwell of SRK in February 2018. The Mineral Resource Estimate of this block model was reported in accordance with the JORC 2012 Code.
Site visits	 Comment on any site visits undertaken by the Competent Person and the outcome of those visits. If no site visits have been undertaken indicate why this is the cause. 	 Dean Basile visited site on the 30th of January 2018, inspected some of the diamond drill core and has met with relevant CBHL personnel and their consultants.
Study status	 The type and level of study undertaken to enable Mineral Resources to be converted to Ore Reserves. The Code requires that a study to at least Pre-Feasibility Study level has been undertaken to convert Mineral Resources to Ore reserves. Such studies will have been carried out and will have determined a mine plan that is technically achievable and economically viable, and that material Modifying Factors have been considered. 	 The study supporting this Reserve Estimate, has been prepared to a Pre Feasibility Study (PFS) level, it has largely followed the scoping study originally prepared by AMDAD in 2017. The level of study has significantly increased in the areas of geological, geotechnical, hydrological, hydrogeological, metallurgical, cost estimation, infrastructure and environmental areas. Most aspects of the study are conventional in nature and are based on tried and tested mining and operating practices. Modifying factors have been considered and are not considered to be anomalous with respect to industry standards. However, of note, the proposed minerals processing plant combines well established unit processes (comminution, gravity concentration, pressure-oxidation leaching, ion-exchange and solvent-extraction, crystallisation) with a new application of technology which is currently not commercially operated in the base metals industry (pyrolysis of pyrite). Further, the proposed minerals processing aspects of the proposed operation, should be considered of consequential potential risk to both the technical and economic viability of the project.
Cut-off parameters	 The basis of the cut-off grade(s) or quality parameters applied. 	 As the deposit is polymetallic, a cobalt equivalent grade was determined using Cobalt and Sulphur as potential revenue sources. A Cobalt equivalent cut-off grade was used to determine if the block is to be included in the Ore Reserves Based on the price and cost assumptions.



Criteria	JORC Code Explanation			Commentary	
Mining factors or		•	deposit.		a cobalt, sulphur and iron
assumptions		•			e evaluation of the project.
	to an Ore Reserve (i.e. either by application of appropriate factors	•	It is planned that the output the strucks along with a fle		
	by optimisation or by preliminary or detailed design).	•	This proposed mining of the mineralisation.	method is appropr	riate for the style and size
	 The choice, nature and appropriateness of the selected mining method(s) and other mining 	1	internal waste, a minii 5% has been assume	ng recovery of 95% ed.	e style deposit with no and mining dilution of
	parameters including associated design issues such as pre-strip,	•	Pit slope geotechnica	l parameters:	
	access, etc.			Pyrite Hill	Railway / Big Hill
	 The assumptions made regarding geotechnical parameters (eg pit 		Parameter	Value	Value
	slopes, stope sizes, etc), grade		Batter Angle	65° – 90°	80° – 90°
	control and pre-production drilling.		IRSA	46° - 56.9°	53.1° – 56.9°
	The major assumptions made		Berm Width	10 m – 13 m	11.5 m – 13 m
	and Mineral Resource model used for pit and stope optimisa-		Bench Height	20 m	20 m
	tion (if appropriate). The mining dilution factors used.		Overall Slope Angle	43° – 54°	50° – 54°
	 The mining analon factors used. The mining recovery factors used. 		No Inforrad Minoral D	ooguraa baa baan ii	adudad in antimication
	 Any minimum mining widths used. 				ncluded in optimisation ies have been conducted
	 The manner in which Inferred Mineral Resources are utilised in mining studies and the sensitivity of the outcome to their inclusion. The infrastructure requirements of the selected mining methods. 				
Metallurgical factors or assumptions	 The metallurgical process proposed and the appropriate- ness of that process to the style of mineralisation. Whether the metallurgical process is well-tested tech- nology or novel in nature. The nature, amount and repre- sentativeness of metallurgical test work undertaken, the nature of the metallurgical domaining applied and the corresponding metallur- gical recovery factors applied. Any assumptions or allowances 	•	gravity/flotation. The p converted to pyrrhotit phere, using commen separating the pyrrho to produce a mixed h is refined to produce of cobalt selected for pro- crystals, which are real Sulphur is extracted for treatment stage.	process is to crush luce a pyrite concer- pyrite is concentrate e by pyrolysis (roas cially available kilns) tite and leaching it i ydroxide precipitate cobalt sulphate crys oduction is cobalt s adily marketable. or sale by condensi	h and coarsely grind ntrate by conventional ed and then is thermally ting in an inert atmos-
	 Any assumptions of allowances made for deleterious elements. The existence of any bulk sample or pilot scale test work and the degree to which such samples are considered representative of the orebody as a whole. For minerals that are defined by a specification, has the ore reserve estimation been based on the appropriate mineralogy to meet the specifications? 		of the PFS testwork. ideal spatial coverage work given the simplic main coverage risk wit concentrate for heat t test work was produc laboratory unit flotatio The pyrolysis was car kiln which provided do purification testwork w producing design dat	This composite, wh c, is considered to b city of the target min ill be grinding circuit reatment (pyrolysis) ared using commerc n cell and a pilot so ried out in a purpos esign data to vendo was carried out at la a for equipment ver	ile providing less than be a suitable basis for this neral assemblage. The t design. A bulk pyrite and hydrometallurgical ial size spirals, a cale magnetic separator. se built laboratory ors. The downstream aboratory scale, also

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Criteria	JORC Code Explanation	Commentary
Metallurgical factors or assumptions (continued)		The novel aspect of the proposed processing plant is the use of pyrolysis (to treat the pyrite concentrate) which avoids the produc- tion of SO2 and the costs of dealing with it. The technical risk of this is ameliorated by the selection of relatively small off-the-shelf kilns which are readily adapted to this use.
		 However, this aspect of the proposed operation should be considered of consequential potential risk to both the technical and economic viability of the project.
Environ- mental	 The status of studies of potential environmental impacts of the mining and processing operation. Details of waste rock characterisation and the consideration of potential sites, status of design options consid- ered and, where applicable, the status of approvals for process residue storage and waste dumps should be reported. 	 Two field investigations have been undertaken as follows. Ecology – 10 to 13 October 2017, 28 November to 1 December 2017 and 6 to 12 April 2018. Outcomes were as follows: Two Endangered Ecological Communities. Neither to be disturbed. One listed flora species. Will not disturbed. Five listed fauna species. One, the Barrier Range Dragon, likely to be impacted. To minimise the impacts on the endangered Barrier Range Dragon, a biodiversity offset will be required where either an area of land containing suitable habitat is set aside for biodiversity purposes, or a payment into a fund for the management of the Barrier Range Dragon is made. Heritage – 28 to 31 May. Results pending but advised that while sites were identified., there are no "show stoppers" Acid Rock Drainage – studies were completed in 2017/18, and generally classify the material as potentially acid forming (PAF). Conceptual desk top study reviews of the remaining environmental components have been completed, with no fatal flaws identified. The following environmental approvals and permits are required: Development consent under Part 4 of the Environmental Planning and Assessment Act 1979. A Mining Lease under the Mining Act 1992. It is noted that two existing mining leases will be retained. An Environment Protection Licence under the Protection of the Environment Operations Act 1997. Aquifer Interference Approval under Section 91 of the Water Management Act 2000. As138 Permit under the Roads Act 1993. An approval from ARTC to construct a railway siding and level crossing. A licence under the Pipelines Act 1967
Infrastructure	• The existence of appropriate infrastructure: availability of land for plant development, power, water, transportation (particularly for bulk commodities), labour, accommodation; or the ease with which the infrastructure can be provided, or accessed.	 The general standard TCP site infrastructure can be classified into three key areas: Mining area Processing area, and Administration area. In addition to the standard infrastructure requirements, a new 26km long 66 kV transmission line will require establishment adjacent to the existing Broken Hill – Peterborough rail line, and will incorporate substation upgrades and installation of a suitable substation yard at the TCP. In order to supply water, a 26km water supply pipeline (including pumping systems) from Broken Hill will also be required adjacent to the Broken Hill – Peterborough rail corridor.

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Criteria	JORC Code Explanation		Commentary			
Infrastructure (continued)		•	A Tailings Storage Facility utilising dry-stacking will be built. This minimises the footprint, maximises the recovery of process water for reuse and minimises the requirement to deal with acid mine drainage.			
		•	A generator powered by excess steam from the process plant and oxygen & nitrogen plants are the main infrastructure items in the process area			
Costs	 The derivation of, or assumptions made, regarding projected capital costs in the study. The methodology used to estimate operating costs. Allowances made for the content of deleterious elements. The source of exchange rates used in the study. Derivation of transportation charges. The basis for forecasting or source of treatment and refining charges, penalties for failure to meet specification, etc. The allowances made for royalties payable, both Government and private. 		 Costs used in the estimation of the Ore Reserves have been sourced from the following documents: Mining Operating Costs: Are based on a quotation estimate provided BGC mining contractors. These costs were benchmarked against mining cost estimates sourced from operations of similar size and nature. Process Operating Costs: The number of samples tested for the grinding circuit is considered to be "low". The average hardness of these samples were used, not the hardest sample for the design. This could have a potential impact on the operating costs. Labour costs were estimated from the manning list using typical mining industry rates for the region Reagent costs were developed from testwork data and vendor quotes Maintenance costs were developed from a mix of vendor quotes for major wear parts and accepted factors on equipment capital cost Power consumption was based mainly on Vendor data. Power consumption was based mainly on Vendor data. Power consumption was based mainly on Vendor data. Power cost were leveloped from AEMO (prices on the National Electricity Market over an 18 month period) and transmission charges from Ausgrid. Just under 20% of the power will be provided through steam generation. Project Capital Estimate (Overall capital of S700M): Mining area – open cut pits, waste durps, heavy vehicle haulroads, Mining Contractor area, explosives magazine, ROM pad and major creek and drainage diversions. Processing – processing plant, Electrical High Voltage yards and MCCS, tails dam and overland conveyors, water storage and catchment of dams, weighbridge and rail siding. Vendor quotations were obtained for all major equipment items using design criteria developed from testwork as well as some assumptions based on industry practice. Quite detailed scaled 3D plant layouts were prepared, which were used for mistallation costs Electrical and instrumentation			



Criteria	JORC Code Explanation	Commentary
Revenue factors	 The derivation of, or assumptions made regarding revenue factors including head grade, metal or commodity price(s) exchange rates, transportation and treatment charges, penalties, net smelter returns, etc. The derivation of assumptions made of metal or commodity price(s), for the principal metals, minerals and co-products. 	 For cost assumptions see section above – "Costs" CBHL employed specialist consultants and specific industry contacts to determine a market outlook for Cobalt. The assumed commodity prices are based on anticipated 2026 prices. The following commodity prices are used (values are in USD/lb for Cobalt and USD/t for sulphur) Cobalt – \$33 Sulphur – \$114 Prices are estimated at the mine gate, freight costs are estimated to be \$AUD129/t cobalt sulphate.
Market assessment	 The demand, supply and stock situation for the particular commodity, consumption trends and factors likely to affect supply and demand into the future. A customer and competitor analysis along with the identification of likely market windows for the product. Price and volume forecasts and the basis for these forecasts. For industrial minerals the customer specification, testing and acceptance requirements prior to a supply contract. 	 The cobalt market is split into two major segments: Metallurgical –including superalloys, magnets, high-speed (HS) steel and hard facing materials. Non-metallurgical –Cobalt chemicals are used in pigments, dyes and catalysts in a number of sectors including the ceramics, plastics and paints industries. The bulk of chemicals are now being used in the production of batteries including NiMH and NiCd batteries (cobalt hydroxide) and Li-ion batteries (cobalt sulphate and oxide). The cobalt market began a multi-year deficit market in 2016 following seven years of overcapacity and oversupply. The market faces a similar deficit in 2018 as global refined demand surpasses the 100,000 tonne milestone. The deficit forecast for 2018 is split broadly equally between the metallurgical sectors: The former because of a decrease in refined supply for metallurgical uses in 2018, and the latter because of stronger than anticipated demand growth for Li-ion batteries Based on a review of the current and forecast market for cobalt over the next fifteen years, the final form of cobalt selected for production was cobalt sulphate heptahydrate crystals. These salts are used in the production of batteries. Sulphate demand growth for NMC batteries is expected to generate demand of cobalt sulphate heptahydrate crystals. Recycling of cobalt from spent EV batteries from 2018 to 2026. While the market specification in terms of cobalt sulphate grade was met, several minor elements were present at above market specification levels. The changes in conditions, necessary to resolve this, will be best determined in the proposed demonstration plant.
Economics	 The inputs to the economic analysis to produce the net present value (NPV) in the study, the source and confidence of these economic inputs including estimated inflation, discount rate, etc. NPV ranges and sensitivity to variations in the significant assumptions and inputs. 	 The costs used in the economic valuation are based on studies mentioned in the "Costs" section of this table. They all have a level of confidence to be included in the Ore Reserve as per the requirements listed in the 2012 JORC Code. The inputs that inform the economic analysis include all foreseeable operating and capital costs, resulting in a positive NPV for the Ore Reserve. A discount rate appropriate to the size and nature of the organisation and deposit has been used in the estimation. The NPV is particularly sensitive to variations in capital and processing metallurgical recovery.



Criteria	JORC Code Explanation		Commentary
Social Other	 The status of agreements with key stakeholders and matters leading to social licence to operate. To the extent relevant, the impact of the following on the project and/or on the estimation and classification of the Ore Reserves: Any identified material naturally occurring risks. The status of material legal agreements and marketing arrangements. The status of governmental agreements and approvals critical to the viability of the project, such as mineral tenement status, and government and statutory approvals. There must be reasonable grounds to expect that all necessary Government approvals will be received within the timeframes anticipated in the Pre-Feasibility or Feasibility study. Highlight and discuss the materiality of any unresolved matter that is dependent on a 	•	 The project would result in substantial benefits to the local community, including Additional employment and economic activity. Broadening of the based of the local mining industry, reducing downside risk in the event of downturns in commodity markets. Extending the life of the mining industry in Broken Hill, permitting more time to transition to a non-mining economy. Notwithstanding this, potential adverse impacts include Competition and increased costs for housing and services. Increased burden for local businesses, including labour costs and availability Pressure on services, including health and education. Taking into account potential beneficial and adverse impacts, the project is determined to provide an overall benefit to the local community; however, adverse impacts will need to be managed. All government agreements and approvals required to realise the Ore Reserves will be realised within the timeframes anticipated in the Pre-feasibility study, and will be in place until the end of the mine life.
Classification	 third party on which extraction of the reserve is contingent. The basis for the classification of the Ore Reserves into varying confidence categories. Whether the result appropriately reflects the Competent Person's view of the deposit. The proportion of Probable 	•	The Ore Reserves classification is based on the JORC 2012 requirements. The basis for the classification was the Mineral Resource classification and economic cut-off grade.
Audit or Reviews	 The proportion of Probable Ore Reserves that have been derived from Measured Mineral Resources (if any). The results of any audits or reviews of Ore Reserve estimates. 	•	No Ore Reserve audits have been carried out; however Internal Peer Review by qualified Mining One personnel has been carried out as part of this Ore Reserves Estimate. Furthermore, reliance on experts in specific fields have been employed to provide opinion and endorsement in areas that are considered innovative/new technology.



Criteria	JORC Code Explanation		Со
Discussion of relative accuracy/ confidence	 Where appropriate a statement of the relative accuracy and confidence level in the Ore Reserve estimate using an approach or procedure deemed appropriate by the Competent Person. For example, the application of statistical or geostatistical procedures to quantify the relative accuracy of the reserve within stated confidence limits, or, if such an approach is not deemed appropriate, a qualitative discussion of the factors which could affect the relative accuracy and confidence of the estimate. The statement should specify whether it relates to global or local estimates, and, if local, state the relevant tonages, which should be relevant to technical and economic evaluation. Documentation should include assumptions made and the procedures used. Accuracy and confidence discussions of any applied Modifying Factors that may have a material impact on Ore Reserve viability, or for which there are remaining areas of uncertainty at the current study stage. It is recognised that this may not be possible or appropriate in all circumstances. These statements of relative accuracy and confidence of the estimate should be compared with production data, where available. 	•	 The most significant factor Reserves are: Although previous stur level of confidence, valand market fluctuation economics. In general, the modifyit assumptions here are However, the propose be novel / new technol significant scale has bo operation should be control both the technical article of the both the both the t

Commentary

The most significant factors affecting confidence in the Ore Reserves are:

- Although previous studies have been prepared to a sufficient level of confidence, variation in the capital, operating costs, and market fluctuations will have an impact on the project economics.
- In general, the modifying factors, mining and operational assumptions here are within industry accepted standard. However, the proposed processing plant is considered to be novel / new technology. No pilot / demonstration plant of significant scale has been built. This aspect of the proposed operation should be considered of consequential potential risk to both the technical and economic viability of the project.