Market Update

04 April 2019

April 2019 – Highlights

Cobalt Blue Holdings Limited

A Green Energy Exploration Company

ASX Code: **COB**

Commodity Exposure:

Cobalt & **Sulphur**

Directors & Management:

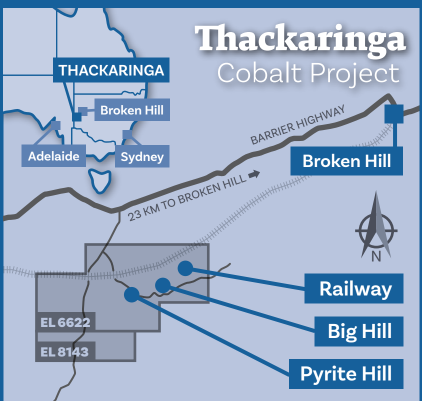
Robert Biancardi	Non-Exec Chairman
Hugh Keller	Non-Exec Director
Robert McDonald	Non-Exec Director
Joe Kaderavek	CEO & Exec Director
Robert Waring	Company Secretary

Capital Structure:

Ordinary Shares at 04/04/2019:	**124.6m**
Options (ASX Code: COBO):	**25.4m**
Market Cap (undiluted):	**$18.7m**

Share Price:

Share Price at 04/04/2019:	**$0.15**



Cobalt Blue Holdings Limited

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Significant Thackaringa Resource Upgrade

KEY POINTS:

- Cobalt Blue Holdings (ASX:COB) is pleased to announce a significant Mineral Resource upgrade at the Thackaringa Cobalt Project, located near Broken Hill, NSW.
- The global Mineral Resource estimate now comprises 111Mt at 889ppm cobalt-equivalent (CoEq) (715ppm Co & 7.8% S) for 79,500t contained cobalt (at a 400ppm CoEq cut-off). The update includes a maiden Measured Resource of 18 Mt at 1150ppm cobalt-equivalent (CoEq) (928 ppm Co & 9.9% S) for 17,100 tonnes of contained cobalt (at a 400ppm CoEq cut-off). Measured and Indicated resources make up approximately 66% of the global Mineral Resource.
- The updated Mineral Resource follows the completion of some 9,500m of recent drilling (completed during Q4 18 – Q1 19).
- Inputs derived from the PFS have supported a revision of the Mineral Resource cut-off grade from 500ppm Co to 400ppm CoEq with inclusion of elemental sulphur as a revenue stream contributing to a significant increase in the Mineral Resource.

Completion of this latest Mineral Resource estimate reflects the culmination of a sustained exploration effort by COB (30,000m drilled from 2016) realising a 235% increase in resource tonnes and a 189% uplift in contained cobalt since COB issued its prospectus and became an independent company listed on the ASX.

Additional drilling activities will target resource infill at the Railway and Big Hill deposits. Drill testing of distal exploration targets, including geophysical anomalies, continues to remain a central piece of COB's long-term exploration strategy.

In the immediate term, COB will now direct future technical activities to metallurgical testwork, with the key deliverables related to large-scale bulk testing.

Cobalt Blue's CEO, Joe Kaderavek commented "We are pleased with the improved classification achieved through the recent drilling campaign; 66% of the Mineral Resource is now available for potential conversion to Proven and Probable Ore Reserves. COB continues to maintain a strong record of resource growth with the update demonstrating a firm step toward realisation of COB's +20 year mine life target."

Mineral Resource Overview

The Thackaringa Mineral Resource update follows some 9,500m drilling completed during Q4 18 – Q1 19 targeting definition of a component of Measured Mineral Resource through enhancement of geological confidence and data density by infill drilling. The infill program focussed on the upper extent (<200m from surface) of the Pyrite Hill deposit which extends over 1.2km along strike and is currently drill tested to approximately 300m down dip.

At Pyrite Hill, the drilling fleet successfully navigated steep terrain to increase data density through the oxidation profile. Drilling intersected variable zones of sulphide mineralisation intercalated with localised oxidation providing sufficient constraint to include 'transition' (partially weathered) material for Pyrite Hill.

The recent campaign also allowed completion of an initial phase of drilling to test down-dip extensions of the Pyrite Hill deposit with holes intersecting mineralisation approximately 180–280m below surface.

Table 1. **The updated Mineral Resource estimates for the Thackaringa Cobalt deposits (at a 400ppm CoEq cut-off) detailed by Mineral Resource classification (CoEq = Co ppm + S % * 22.235).**

Note minor rounding errors may have occurred in compilation of this table.

Category	Mt	Co ppm	CoEq ppm	Fe %	S %	Pyrite %	Contained Co (t)	Pyrite Mt
Pyrite Hill (at a 400ppm CoEq cut-off)								
Measured	18	928	1150	10.7	9.9	19	17,100	3
Indicated	7	759	940	9.7	8.1	15	5,600	1
Inferred	7	820	1020	10.4	8.9	17	5,700	1
Total	**33**	**867**	**1070**	**10.4**	**9.3**	**17**	**28,400**	**6**
Railway (at a 400ppm CoEq cut-off)								
Indicated	37	677	843	8.5	7.4	14	25,100	5
Inferred	24	650	821	9.0	7.7	14	15,300	3
Total	**61**	**667**	**834**	**8.7**	**7.5**	**14**	**40,500**	**9**
Big Hill (at a 400ppm CoEq cut-off)								
Indicated	11	629	767	6.7	6.2	12	6,800	1
Inferred	7	553	678	6.2	5.6	11	3,900	1
Total	**18**	**599**	**732**	**6.5**	**6.0**	**11**	**11,000**	**2**
Total (at a 400ppm CoEq cut-off)								
Measured	18	928	1150	10.7	9.9	19	17,100	3
Indicated	55	679	841	8.3	7.3	14	37,500	8
Inferred	38	663	831	8.8	7.5	14	24,900	5
Total	**111**	**715**	**889**	**8.9**	**7.8**	**15**	**79,500**	**16**

Material changes from the preceding 2018 Mineral Resource (see ASX Announcement 'Thackaringa – Significant Mineral Resource upgrade' on 19 March 2018) can be attributed to the following:

- **Infill & Extensional Drilling of Sulphide Material**

  The Mineral Resource update includes data obtained during the recent drilling campaign at Pyrite Hill; 64 drill holes for approximately 8,700m. This drilling substantially increased data density and improved geological confidence reflected by the revised classifications.

- **Drilling of Near Surface Oxide Material**

  Approximately 430m of the broader campaign successfully intersected the oxide profile at Pyrite Hill supporting a revision of the oxidation surfaces. The improved geological constraint and increased assay data informed extension of the block model through to the base of complete oxidation; allowing addition of 'transition' material excluded from the preceding estimate.

- **Conceptual Pit Optimisation**
  As a means to constrain the reportable Mineral Resource, COB has utilised pit optimisations at a 1.3 revenue factor.
- **Cut-Off Optimisation**
  With completion of the Thackaringa Preliminary Feasibility Study and Ore Reserve estimate, COB had established a technically feasible and economic project for production of cobalt sulphate heptahydrate and elemental sulphur from the Thackaringa deposits. The study has provided a robust basis for the revision of the resource cut-off grade to 400ppm CoEq: the previous 500ppm cobalt cut-off did not take into account sulphur as a revenue producing co-product.

  The revised cut-off grade considers modifying factors guided by the PFS and appropriately incorporates revenue streams from elemental sulphur in addition to cobalt.

  A discussion of the Australian sulphur market was contained in the September 2018 PFS announcement (see ASX Announcement 'Thackaringa Pre-Feasibility Study Announced' 4 July 2018)

Figure 1. **Thackaringa Cobalt Project district map**

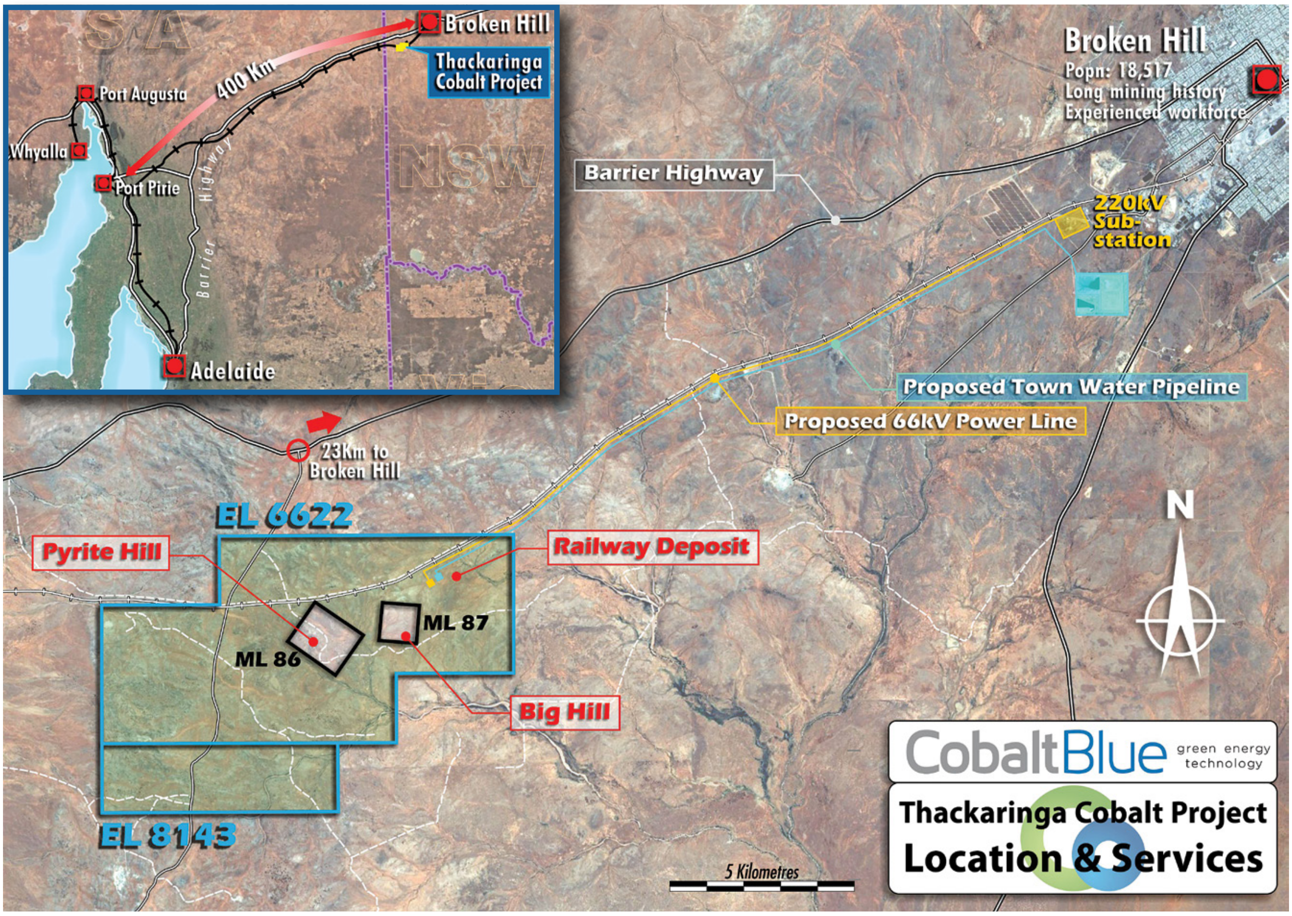


Figure 2. **Pyrite Hill deposit 2018–2019 drill hole collar plan illustrating drill holes relative to historical drilling. The inputs and results underpinning the 'upside pit design' are as released 4 July 2018 'Thackaringa Pre-Feasibility Study Announced.'**

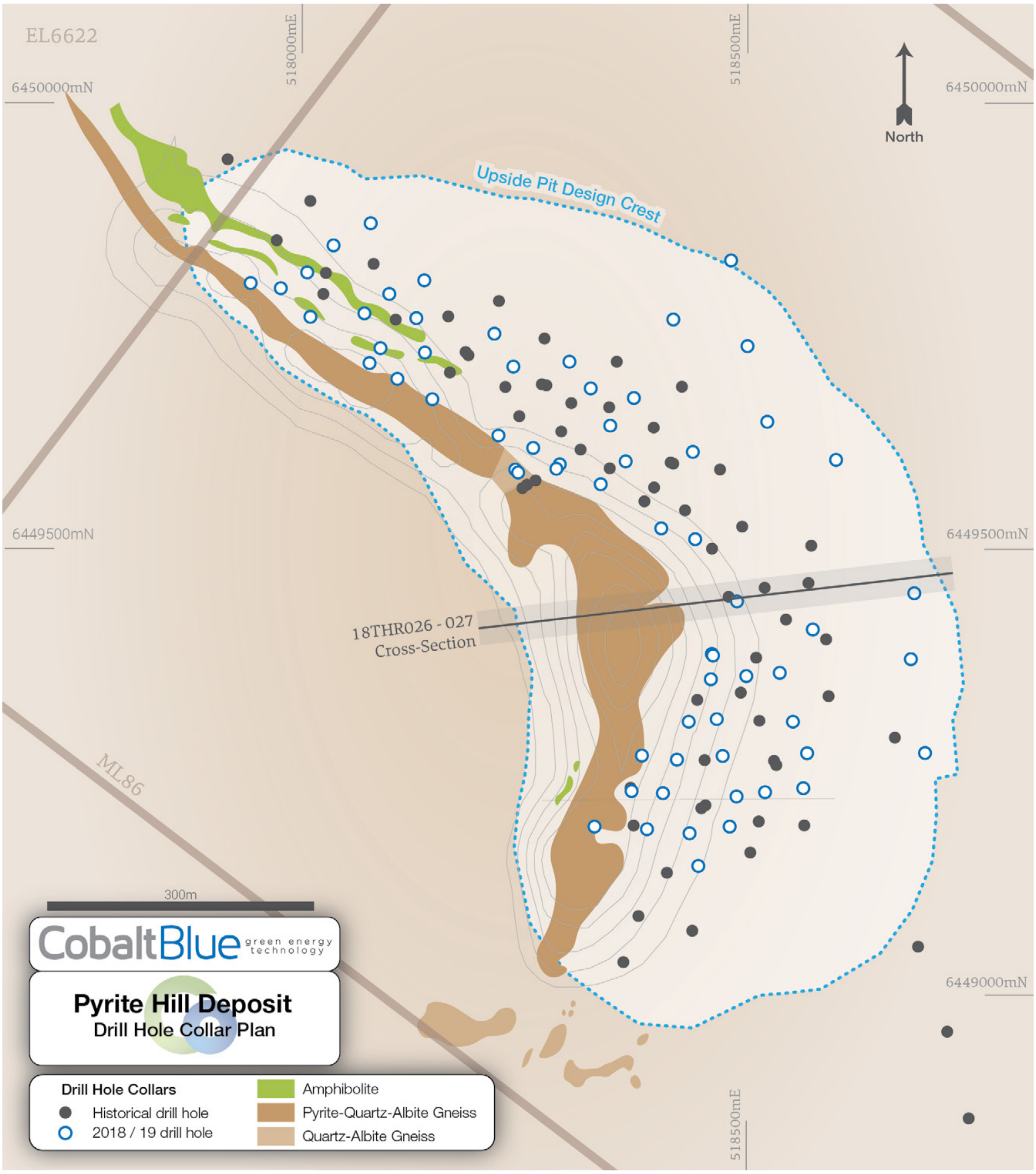


Figure 3. **Pyrite Hill deposit drilling cross section showing strong continuity of mineralisation grade and thickness down-dip. Historical intersections are as released 4 May 2017 '2017 Update – Strong Drilling Results Continue' and the inputs and results underpinning the 'upside pit design' are as released 4 July 2018 'Thackaringa Pre-Feasibility Study Announced.'**

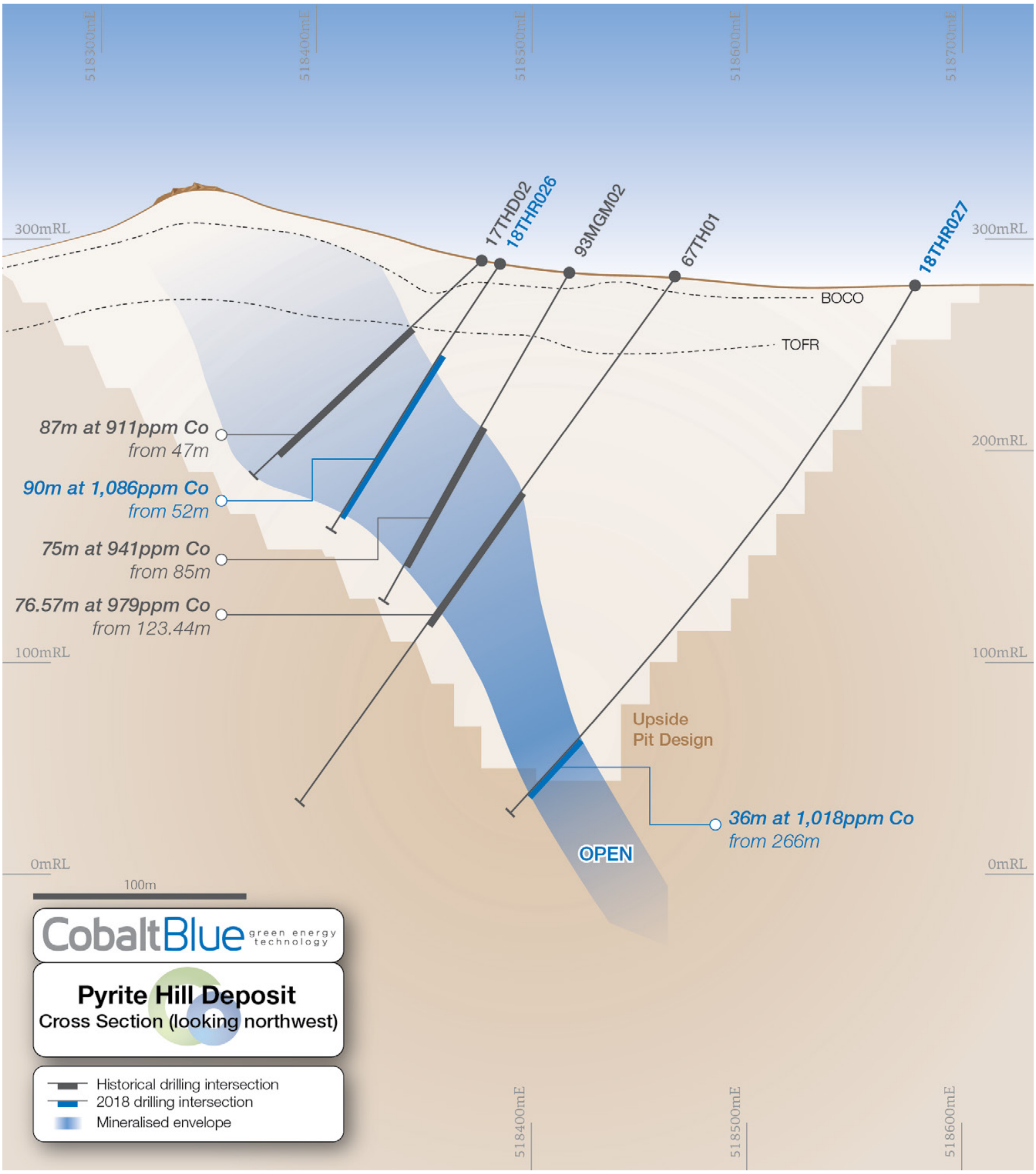


Figure 4. **Pyrite Hill Mineral Resource block model looking southwest illustrating block distribution by resource classification (bottom) and cobalt equivalent grade (top).**

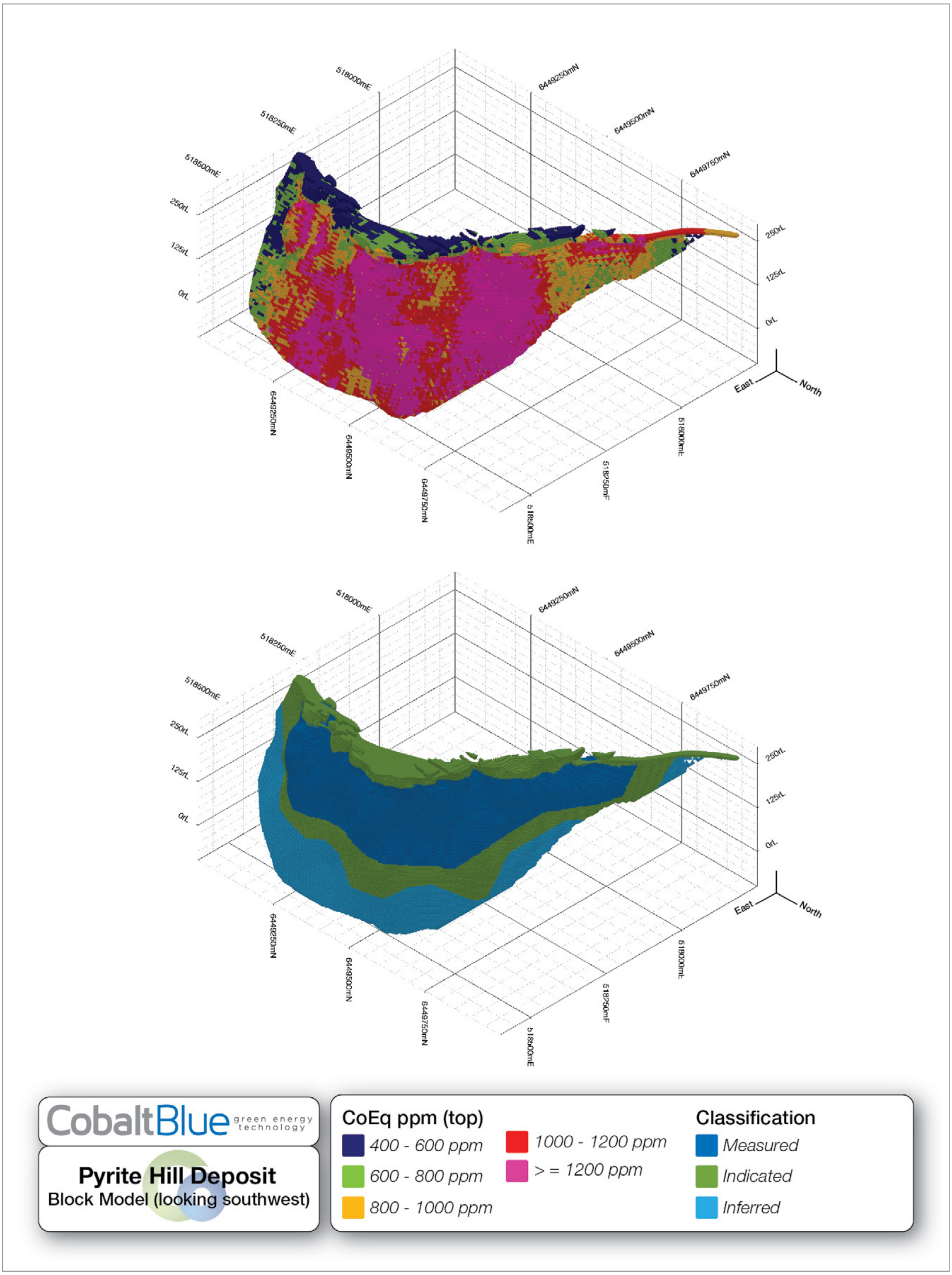


Figure 5. **Railway Mineral Resource block model looking southeast illustrating block distribution by resource classification (bottom) and cobalt equivalent grade (top).**

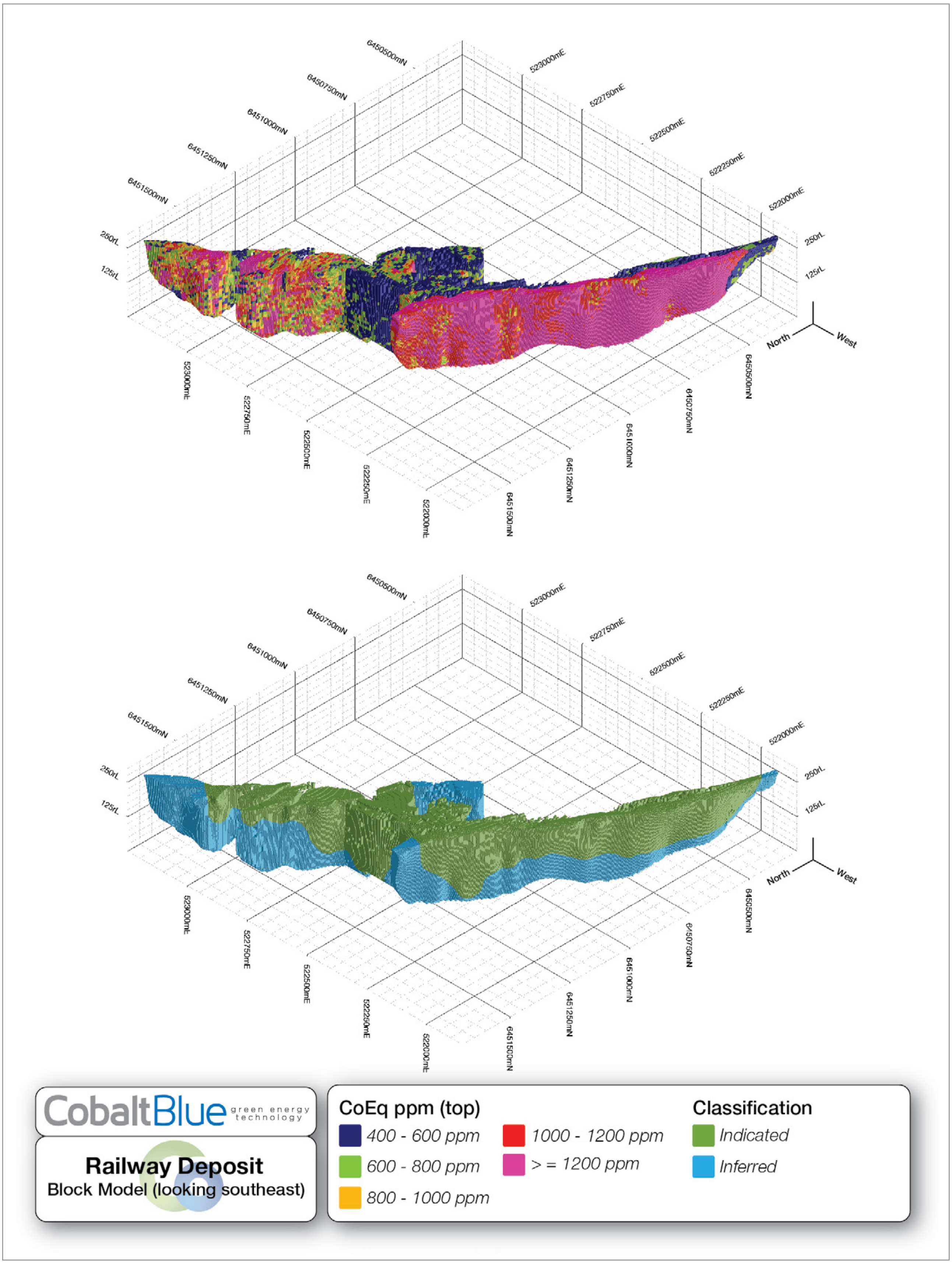
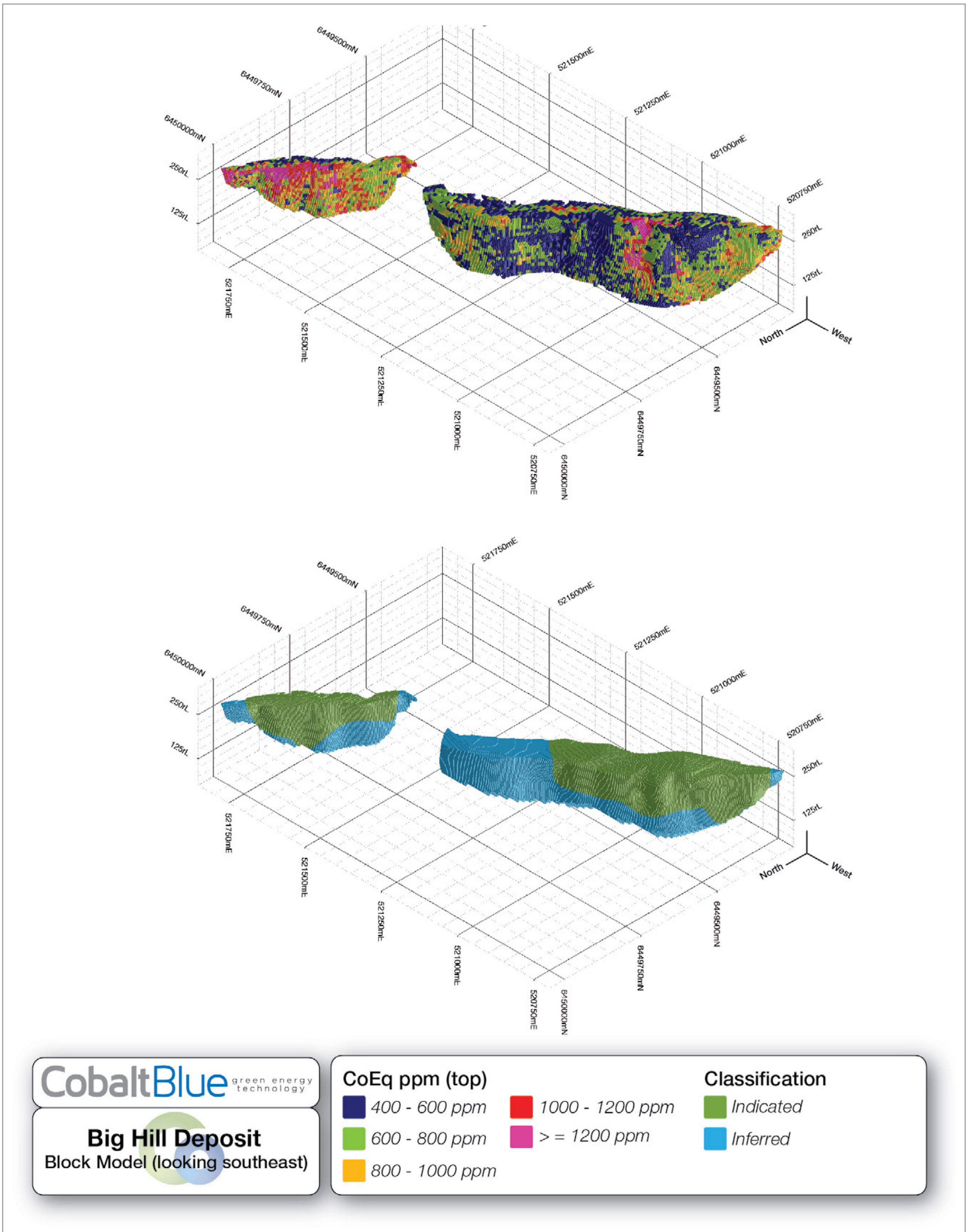


Figure 6. **Big Hill Mineral Resource block model looking southeast illustrating block distribution by resource classification (bottom) and cobalt equivalent grade (top).**



Competent Person's Statement

The information in this report that relates to Exploration Targets, Exploration Results and Mineral Resources 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.

The revised Mineral Resource was independently prepared by SRK Consulting using a Co-Kriging ('CK') method of estimation, suitable for the style of mineralisation. Mr Danny Kentwell, Principal Consultant (Resource Evaluation) at SRK Consulting, was engaged to estimate the Mineral Resource as the independent Competent Person. The Mineral Resource has been estimated and reported in accordance with the guidelines of the 2012 edition of the Australasian Code for the Reporting of Exploration Results, Minerals Resources and Ore Reserves ('2012 JORC Code').

Cobalt Blue Background

Cobalt Blue Holdings Limited (ASX: COB) is an exploration and project development company focussed on green energy technology. Work programs are advancing to enable an upgrade of the Mineral Resource at the Thackaringa Cobalt Project in New South Wales.

Cobalt is a strategic metal in strong demand for new generation batteries, particularly lithium-ion batteries now being widely used in clean energy systems.

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 to join our newsletter mailing list at our website.

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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

- 26 February 2019: Positive Large Scale Testwork Results
- 5 February 2019: Drilling Campaign Update
- 16 January 2019: Drilling Campaign Paused. Technical Work Programs Continue
- 05 December 2018: Thackaringa Cobalt Project Drilling and Water Supply Update
- 01 November 2018: Thackaringa Feasibility Study Drilling Campaign Commences
- 13 September 2018: Bankable Feasibility Study Commences with Drilling Campaign and Project Optimisation Studies
- 04 July 2018: Thackaringa Pre Feasibility Study Announced
- 20 April 2018: Thackaringa JV – Stage One Completed
- 19 March 2018: Thackaringa – Significant Mineral Resource Upgrade
- 05 March 2018: PFS – Calcine and Leach Testwork Complete – Strong Results
- 24 January 2018: Significant Thackaringa Drilling Program complete – Resource Upgrade pending

Geology and Geological Interpretation

The Thackaringa project is located in a deformed and metamorphosed Proterozoic supracrustal rock succession named the Willyama Supergroup, which is exposed as several inliers in western New South Wales, including the Broken Hill Block. Exploration by Cobalt Blue Holdings has been focused on the discovery of cobaltiferous pyrite deposits.

The project area covers portions of the Broken Hill and Thackaringa group successions which host the majority of mineralisation in the region, including the world-class Broken Hill Ag-Pb-Zn deposit. The extensive sequence of quartz-albite gneiss that hosts the cobaltiferous pyrite mineralisation is interpreted as belonging to the Himalaya Formation, which is stratigraphically at the top of the Thackaringa Group.

The Thackaringa deposits are characterised by large tonnage cobaltiferous pyrite mineralisation hosted by a quartz + albite gneiss. 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 which further convolutes folding that appears to be slump or soft-sediment folding.

Sampling/sub-sampling Techniques and Sample Analysis Method

Sampling and sub-sampling techniques have varied between phases of exploration at the Thackaringa Project and are summarised below:

- Reverse circulation drilling was used to obtain a representative sample by means of splitting. Samples were submitted for analysis using a mixed acid digestion and ICP-MS/AES methodology for a variable suite of elements.
- Diamond drilling was used to obtain core from which variable sample intervals were sawn or hand split, in the case of historical drill holes. Samples were submitted for analysis using a mixed acid digestion and AAS or ICP-MS/AES methodology.

Drilling Techniques

The Thackaringa drilling database comprises a total of 68 diamond drill holes, 184 reverse circulation (RC)/percussion drill holes and 21 diamond drill holes with RC/percussion pre-collars of varying depths. Diamond drilling was predominantly completed with standard diameter, conventional HQ and NQ with historical holes typically utilising RC and percussion pre-collars to an average 25 metres (see Drill hole Information for further details). Early (1960-1970) drill holes utilised HX – AX diameters dependent on drilling depth. Reverse circulation drilling utilised standard hole diameters (4.8”-5.5”) with a face sampling hammer.

Since 2013 all diamond drilling has been completed using a triple tube system with an NQ3 - HQ3 diameter. Drill holes were typically drilled at angles between 40 and 60 degrees from horizontal and the resulting core was oriented as part of the logging process.

Mineral Resource Estimation Methodology

The Mineral Resource estimate was completed by Co-Kriging (‘CK’) Co, Fe and S in the Isatis software package. Eleven domains are used all with hard boundaries to control geology, geometry and grade and ensure appropriate samples are selected for estimation. An additional transitional material domain was used at Pyrite Hill with a soft boundary into the fresh material.

The orientations of both variograms and search ellipses were varied on a block by block basis controlled by a set of trend and fold wireframes. 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 three multivariate models were utilised for estimation. Two for the Pyrite Hill domain (North and South) and another for all of the remaining Big Hill and Railway domains.

5m composites were used with residual short lengths being incorporated and redistributed such that final composite lengths may be slightly shorter and longer than 5m. This length was chosen to be consistent with the 5m x 10m x 10m parent block dimensions and the assumed bulk mining approach. No top cuts or caps were used for any variables as grade distributions were not highly skewed and estimates were validated without the need for cutting or capping.

The estimation utilised a single pass approach with interpolation and extrapolation limited by both optimum sample numbers controlled by sectors and 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 / prioritised within successively larger ellipses rather than by spherical distances. A minimum of 4 samples, an optimum of 8 composites 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 and did not reflect the true block variability.

Block size used is 5m (east), 10m in (north) and 10m (elevation). This compares to an average drill spacing of between 25m and 60m along strike with average sample lengths of 1m combined with variogram ranges between 115m and 160m along strike, 70m to 80m down dip and 18m to 40m across strike.

Validation of the estimate 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 inspection of grades, regression slopes, kriging efficiency, number of composites used.
- Comparison of grades and tonnages above cut off to previous estimates.
- Swath plots.
- Global change of support checks.

Maximum extrapolation for Inferred material is approximately 120m and averages around 80m.

Mineral Resource Classification

Classification is based on the kriging regression slope with class surfaces created from viewing the regression slopes of the estimated blocks in section. Measured is defined as all fresh material above a 0.8 kriging regression slope surface. Indicated is defined as all material above the 0.5 kriging regression slope surface together with all Transition material. Inferred is defined as all material above the 0 kriging regression slope surface and below the 0.5 kriging regression slope surface.

The classification reflects the Competent Person's view of the deposit.

Cut-off Grade

The Mineral Resource has been reported at a cut-off of 400ppm cobalt equivalent based on an assessment of material that has reasonable prospects of eventual economic extraction.

The revised cut-off grade incorporates revenue streams from elemental sulphur; an economic by-product of the processing pathway defined in the PFS. The cobalt equivalent grade and has been derived from the following cut-off calculation **CoEq ppm = Co ppm + (S ppm × (S price/ Co price) × (S recovery/ Co recovery))[1].**

This equates to **CoEq ppm = Co ppm + (S% × 22.235).** The parameters used for this calculation are listed in the table below.

Assumption	Input
A$/US$ Exchange Rate	0.74
Cobalt Price	US$27/lb Co[2]
Sulphur Price	US$150/t
Cobalt Recovery	85%
Sulphur Recovery	75%

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

2 Cobalt price sourced from SRK Consulting.

The revised cobalt equivalent cut-off grade results in an increase to the reportable Mineral Resources. A comparison between the 2018 and 2019 Mineral Resources at the previous 500ppm cobalt cut-off is shown in Tables 2 and 3. The 2018 Mineral Resource was reported prior to the completion of the PFS and did not consider the benefits of sulphur.

Table 2. **The superseded 2018 Mineral Resource estimates for the Thackaringa Cobalt deposits (at a 500ppm Co cut-off) detailed by Mineral Resource classification.**

Note minor rounding errors may have occurred in compilation of this table.

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

Table 3. **The updated Mineral Resource estimates for the Thackaringa Cobalt deposits (at a 500ppm Co cut-off) detailed by Mineral Resource classification (constrained by pit optimisations at 1.3 revenue factor and including 'transition' material at the Pyrite Hill deposit).**

Note minor rounding errors may have occurred in compilation of this table.

Category	Mt	Co ppm	Fe %	S %	Pyrite %	Contained Co (t)	Py Mt
Pyrite Hill (at a 500ppm Co cut-off)							
Measured	18	955	10.8	10.1	19	16,800	3
Indicated	6	850	10.1	8.8	17	5,000	1
Inferred	6	853	10.6	9.1	17	5,400	1
Total	**30**	**912**	**10.6**	**9.6**	**18**	**27,200**	**5**
Railway (at a 500ppm Co cut-off)							
Indicated	23	854	10.1	9.2	17	19,400	4
Inferred	14	820	10.6	9.5	18	11,500	2
Total	**37**	**841**	**10.3**	**9.3**	**17**	**30,900**	**6**
Big Hill (at a 500ppm Co cut-off)							
Indicated	8	710	7.2	6.9	13	5,500	1
Inferred	4	655	6.8	6.5	12	2,600	0
Total	**12**	**692**	**7.0**	**6.7**	**13**	**8,100**	**1**
Total (at a 500ppm Co cut-off)							
Measured	18	955	10.8	10.1	19	16,800	3
Indicated	36	832	9.5	8.6	16	29,900	6
Inferred	24	809	10.0	8.9	17	19,600	4
Total	**78**	**847**	**9.9**	**9.0**	**17**	**66,200**	**13**

Modifying Factors

Detailed metallurgical studies completed for the Preliminary Feasibility Study have examined a processing pathway comprising four primary stages of ore treatment:

- **Concentration of Pyrite from Ore**

  The mined ore is crushed to p80 ~ 800–900 um (p100 1.2mm) and passed over gravity spirals to produce a pyrite concentrate. The gravity tails are screened and the fines fraction (<125 um) is sent to a scavenger flotation circuit to recover any sulphides. The use of gravity spirals, takes advantage of the coarse pyrite grains (p80 200-800 um), and limits costs associated with crushing and milling the ore, as would be the case for a typical flotation circuit requiring feed at p80 100–200 um.

  In the PFS testwork program, 820 kg of ore at 607 ppm Co, 7.94% Fe, 7.58% S & 59.84% SiO_2 was trialled using a full-sized gravity spiral and a 14 L flotation cell. The recovery of cobalt to concentrate was 92%, at a grade of 3326 ppm. The ore was tested on a continuous pilot basis.

- **Thermal Decomposition (Pyrolysis) Of Pyrite Concentrate**

  The pyrite mineral is thermally decomposed into pyrrhotite and elemental sulphur by heating to 650–700°C. A nitrogen atmosphere is used to prevent any oxidation. The off-gas is collected and cooled to recover the sulphur. In the PFS testwork program, 100 kg of concentrate grading 3326 ppm cobalt was processed in a custom-built rotary furnace. Variations in operating conditions were tested, with the best results showing that >95% of the pyrite could be converted into pyrrhotite along with the simultaneous recovery of 40% of the head sulphur. The calcine was then passed through a magnetic separator to prepare a magnetic fraction containing pyrrhotite for leaching, and a non-magnetic fraction containing unreacted pyrite for recycle to the concentrator circuit.

- **Leaching and Production of Mixed Hydroxide Precipitate**

  The artificial pyrrhotite is leached in a low-temperature (130°C) and pressure (10–15 bar) autoclave. The resulting leach residue is screened, and the coarse fraction is sent for sulphur recovery by distillation or remelting. The fines fraction is discarded as tails from the process plant. The resulting leach solutions are treated to remove iron, copper and zinc before precipitating the cobalt as a mixed hydroxide (along with nickel and manganese).

  In the PFS testwork program, ~ 30 kg of calcine product from the furnace was leached in batches of 250g to 1kg. Variations in the operating conditions were tested, with the best results showing that 97-98% of the cobalt could be leached consistently from the pyrolysis calcine.

- **Refining of The Mixed Hydroxide Precipitate to Produce Cobalt Sulphate Crystals**

  In the PFS testwork program, variations on the ion-exchange and solvent extraction circuits were tested. The best conditions resulted in the production of cobalt sulphate heptahydrate grading ~20.5% with total impurities at ~800 ppm copper and 800 ppm manganese. Further optimisation of the parameters for the ion-exchange circuits, is expected to reduce the copper and manganese content reporting to the cobalt sulphate in future testwork.

Estimation of waste sulphur values into the block model has been completed for waste material in order to estimate the component of potentially acid forming material. Sulphur (S) has been estimated in both the Resource and waste material where information is available. A background S value of 0.05% has been included where no assay information is available and where expected lithology types are typically below the 0.05% S value.

The construction of a suitable tailings facility is assumed for storing waste material from the process plant. It is considered a portion of water from such a facility could be recovered for re-use as process water.

CobaltBlue

Appendix 1 – JORC Code, 2012 Edition – Table 1

Section 1 – Sampling Techniques and Data

(Criteria in this section apply to all succeeding sections.)

Criteria	JORC Code Explanation	Commentary

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

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

Criteria	JORC Code Explanation	Commentary

Drilling techniques *(continued)*

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

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

Drill sample recovery

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

Diamond Drilling

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

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

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

Criteria	JORC Code Explanation	Commentary
Drill sample recovery *(continued)*		**Reverse Circulation ('RC') Drilling** - Reverse circulation sample recoveries were visually estimated during drilling programs. Where the estimated sample recovery was below 100% this was recorded in field logs by means of qualitative observation. - Reverse circulation drilling employed sufficient air (using a compressor and booster) to maximise sample recovery. - No relationship between sample recovery and grade has been observed.
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.*	- A qualified geoscientist has logged all reported drill holes in their entirety. This logging has been completed to a level of detail considered to accurately support Mineral Resource estimation and metallurgical studies. The parameters logged include lithology, alteration, mineralisation and oxidation. These parameters are both qualitative and quantitative in nature. - Diamond drilling completed during 2016–2018 has been subject to geotechnical logging with parameters recorded including rock-quality designation (RQD), fracture frequency and hardness. - During 2013, a considerable amount of historical drilling was re-logged through review of available core stored at Broken Hill as well the re-interpretation of historical reports where core or percussion samples no longer exist. A total of eight (8) diamond drill holes and sixteen (16) diamond drill holes with pre-collars were re-logged as detailed below:

Hole ID	Deposit	Max Depth (m)	Hole Type	Pre-Collar Depth (m)
67TH01	Pyrite Hill	304.2	DDH	–
70BH01	Big Hill	102.7	DDH	–
70BH02	Big Hill	103.9	DDH	–
70TH02	Pyrite Hill	148.6	DDH	–
70TH03	Pyrite Hill	141.4	DDH	–
80BGH05	Big Hill	54.86	PDDH	45.5
80BGH06	Big Hill	68.04	PDDH	58
80BGH08	Big Hill	79.7	PDDH	69.9
80BGH09	Big Hill	100.5	PDDH	–
80PYH01	Pyrite Hill	24.53	PDDH	6
80PYH02	Pyrite Hill	51.3	PDDH	33.58
80PYH04	Pyrite Hill	55	PDDH	38.7
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
80PYH13	Pyrite Hill	77	DDH	–
80PYH14	Pyrite Hill	300.3	DDH	–
93MGM01	Pyrite Hill	70	PDDH	24
93MGM02	Pyrite Hill	180	PDDH	48

DDH *Diamond drill hole* ***PDDH*** *Diamond drill hole with percussion pre-collar*

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

Criteria	JORC Code Explanation	Commentary

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

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

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

2018–2019

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

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

Criteria	JORC Code Explanation	Commentary
Quality of assay data and laboratory tests	▪ *The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.* ▪ *For geophysical tools, spectrometers, handheld XRF instruments, etc, the parameters used in determining the analysis including instrument make and model, reading times, calibrations factors applied and their derivation, etc.* ▪ *Nature of quality control procedures adopted (eg standards, blanks, duplicates, external laboratory checks) and whether acceptable levels of accuracy (ie lack of bias) and precision have been established.*	▪ The nature and quality of all assaying and laboratory procedures employed for samples obtained through drilling (diamond and reverse circulation) are considered 'industry standard' for the respective periods. ▪ The assay techniques employed for drilling (diamond and reverse circulation) include mixed acid digestion with ICP-OES, ICP-AES, ICP-MS and AAS finishes. These methods are considered appropriate for the targeted mineralisation and regarded as a 'near total' digestion technique with resistive phases not expected to affect cobalt analysis. ▪ All samples have been processed at independent commercial laboratories including AMDEL, Australian Laboratory Services (ALS), Analabs and Genalysis. **2011–2012** ▪ All samples from drilling completed during 2011–2012 were assayed at ALS in Orange, New South Wales. All samples from drilling completed during 2016-2019 were processed at ALS Adelaide, South Australia. ALS is a NATA Accredited Laboratory and qualifies for JAS/ANZ ISO9001:2008 quality systems. ALS also maintains internal QAQC procedures (including analysis of standards, repeats and blanks). **2016–2017** ▪ To monitor the accuracy of assay results from the 2016–2017 Thackaringa drilling, CRM standards were included in the assay sample stream at an average rate of 1:24. The CRM samples were purchased from Ore Research & Exploration Pty Ltd with results summarised below:

Criteria	Commentary

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

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

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

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

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

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

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

2018–2019

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

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

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

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

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

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

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

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

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

Data spacing and distribution	- *Data spacing for reporting of Exploration Results.*
	- *Whether the data spacing and distribution is sufficient to establish the degree of geological and grade continuity appropriate for the Mineral Resource and Ore Reserve estimation procedure(s) and classifications applied.*
	- *Whether sample compositing has been applied.*
		- The data density of existing drill holes at Thackaringa has been materially increased by the 2016–2018 drilling programs. Drilling density at each deposit varies along strike generally responsive to exploration targeting and interpreted geological complexity with the average drill line spacing for each deposit summarised below:
		  - Railway: 25 – 40m
		  - Pyrite Hill: 30 – 40m
		  - Big Hill: 40 – 60m
		- Detailed geological mapping is supported by drill-hole data of sufficient spacing and distribution to complete a 3D geological modelling and Mineral Resource estimation
		- No sample compositing has been applied to reported intersections.

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

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

Section 2 – Reporting of Exploration Results

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

Criteria	JORC Code Explanation	Commentary
Geology *(continued)*		• The project area covers portions of the Broken Hill and Thackaringa group successions which host the majority of mineralisation in the region, including the Broken Hill base metal deposit. The Sundown Group suite is also present. The extensive sequence of quartz-albite-plagioclase rock that hosts the cobaltiferous pyrite mineralisation is interpreted as belonging to the Himalaya Formation, which is stratigraphically at the top of the Thackaringa Group. **Local Geological Setting** • The oldest rocks in the region belong to the Curnamona Craton which outcrops on the Broken Hill and Euriowie blocks. • The overlying Proterozoic rocks have been broadly subdivided into three major groupings, of which the oldest groups are the highly deformed metasediments and igneous derived rocks of the Thackaringa and Broken Hill groups. They comprise a major part of the Willyama Supergroup and host the giant Broken Hill massive Pb-Zn-Ag sulphide ore body. EL6622 is within the Broken Hill block of the Curnamona Craton. **Mineralisation Style** • The Thackaringa mineral deposits (Pyrite Hill, Big Hill and Railway) are characterised by large tonnage cobaltiferous pyrite mineralisation hosted within siliceous albitic gneisses and schists of the Himalaya Formation. • Cobalt mineralisation exists within extensive pyritic horizons where cobalt is present within the pyrite lattice. Mineralogical studies have indicated the majority of cobalt (~85%) is found in solid solution with primary pyrite (Henley 1998). • A strong correlation between pyrite content and cobalt grade is observed.

Drill hole Information	• *A summary of all information material to the understanding of the exploration results including a tabulation of the following information for all Material drill holes:*
	  ▪ *easting and northing of the drill hole collar*
	  ▪ *elevation or RL (Reduced Level – elevation above sea level in metres) of the drill hole collar*
	  ▪ *dip and azimuth of the hole*
	  ▪ *down hole length and interception depth*
	  ▪ *hole length.*
	• *If the exclusion of this information is justified on the basis that this information is not Material and this exclusion does not detract from the understanding of the report, the Competent Person should clearly explain why this is the case.*
		• Drill Hole information tables are shown on the next pages.

Criteria	Commentary

Drill hole Information *(continued)*

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

Criteria	Commentary
Drill hole Information *(continued)*	

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

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

Criteria	Commentary
Drill hole Information *(continued)*	

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

Criteria	Commentary
Drill hole Information *(continued)*	

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

Criteria	Commentary
Drill hole Information *(continued)*	

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

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

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

Criteria	JORC Code Explanation	Commentary
Other substantive exploration data	- *Other exploration data, if meaningful and material, should be reported including (but not limited to): geological observations; geophysical survey results; geochemical survey results; bulk samples – size and method of treatment; metallurgical test results; bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.*	- A Preliminary Feasibility Study ('PFS') was completed in June 2018 and released on 4 July 2018. Results of the PFS can be reviewed via the ASX Announcement Thackaringa Pre-Feasibility Study Announced.
Further work	- *The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).* - *Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.*	- COB is continuing to advance current work programs including further bulk test work, optimisation of power studies, tailings studies, project mining, environmental and engineering studies. Presently, COB is progressing bulk scale concentration test work on 44.5 t of RC chips (See ASX Announcement 26 Feb 2019); weighted average head grades 1002ppm Co, 10.5% Fe, 10.1% S. Further updates to be released when test work is completed - Areas of possible extension are outlined in the ASX Announcement Bankable Feasibility Study Commences with Drilling Campaign and Project Optimisation Studies (13 September 2018).

Section 3 – Estimation and Reporting of Mineral Resources

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 Resource estimation purposes.*
	▪ *Data validation procedures used.*
		▪ 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.
		▪ In general, the following rules are applied:
		  ▪ Downhole intervals Depth_To > Depth_From
		  ▪ 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 updated, inserted or deleted.
		  ▪ Once Load_Date and Loaded_By fields have been populated upon database loading these fields are unable to be modified. 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 under-taken indicate why this is the case.*	▪ The geological model used for the resource estimation was 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	▪ *Nature of the data used and of any assumptions made.* ▪ *The effect, if any, of alternative interpretations on Mineral Resource estimation.* ▪ *The use of geology in guiding and controlling Mineral Resource estimation.* ▪ *The factors affecting continuity both of grade and geology.*	▪ 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 the Mineral Resource estimate announced to the ASX on 19 March 2018. Confidence in the Pyrite Hill geological model has been greatly improved by the drilling completed during 2017 - 2019. ▪ The geological model has been developed from a good under-standing 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. An independent geological consultant has used this data to develop a lithogeochemical model 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.

Criteria	JORC Code Explanation	Commentary
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 3,500m 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 Hangingwall zone. ▪ The Pyrite Hill portion of the deposit is an arc like formation some 1,000m along strike, 400m down dip and between 10m and 100m across strike.
Estimation and modelling techniques	▪ *The nature and appropriateness of the estimation technique(s) applied and key assumptions, including treatment of extreme grade values, domaining, interpolation parameters and maximum distance of extrapolation from data points. If a computer assisted estimation method was chosen include a description of computer software and parameters used.* ▪ *The availability of check estimates, previous estimates and/or mine production records and whether the Mineral Resource estimate takes appropriate account of such data.* ▪ *The assumptions made regarding recovery of by-products.* ▪ *Estimation of deleterious elements or other non-grade variables of economic significance (eg sulphur for acid mine drainage characterisation).* ▪ *In the case of block model interpo-lation, the block size in relation to the average sample spacing and the search employed.* ▪ *Any assumptions behind modelling of selective mining units.* ▪ *Any assumptions about correlation between variables.* ▪ *Description of how the geological interpretation was used to control the resource estimates.* ▪ *Discussion of basis for using or not using grade cutting or capping.* ▪ *The process of validation, the checking process used, the comparison of model data to drill hole data, and use of reconciliation data if available.*	▪ 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. ▪ Three variables Co, Fe and S are highly correlated and have been Co-Kriged. Co-Kriging involves simultaneous fitting of variogram models to the three main variables and to three cross variograms and simultaneous estimation accounting for the spatial continuity of all three variables at once. This maintains the correlations between variable which are not necessarily honoured when independent Kriging is performed. ▪ The orientations of both variograms and search ellipses is varied on 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 nearest neighbour estimate into the blocks prior to grade estimation. ▪ Eleven domains are used all with hard boundaries to control geology, geometry and grade and ensure appropriate samples are selected for estimation. An additional transitional material domain was used at Pyrite Hill with a soft boundary into the fresh material. ▪ No top cuts or caps are used for any of the variables as the grade distributions are not highly skewed and the estimate validated well without the need for cutting or capping. ▪ 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 three multivariate models were utilised for estimation. Two for the Pyrite Hill domain (North and South) and another for all of the remaining Big Hill and Railway domains. ▪ 5m assay composites are used with residual short lengths less than 1m being incorporated and redistributed such that final composite lengths may be slightly shorter and longer than 5m. This length was chosen to be consistent with the 5m x 10m x 10m block dimensions and the assumed bulk mining approach. ▪ Estimation utilised a single pass approach with interpolation end extrapolation limited by both optimum sample numbers controlled 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-itised within successively larger ellipses rather than by spherical distances. A minimum of 4 samples, an optimum of 8 composites 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 and did not reflect the true block variability and was not utilised in the final block model.

Criteria	JORC Code Explanation	Commentary

Estimation and modelling techniques *(continued)*		▪ Block size used is 5m (east), 10m in (north) and 10m (elevation). This compares to an average drill spacing of between 25m and 60m along strike with average sample lengths of 1m combined with variogram ranges between 115m and 160m along strike, 70m to 80m down dip and 18m to 40m across strike. Variography shows moderate to low nugget effect.
		▪ 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 inspection of grades, regression slopes, kriging efficiency, number of composites used
		  ▪ Comparison of grades and tonnages above cut off to previous estimates
		  ▪ Swath plots
		  ▪ Global change of support checks
		▪ Maximum extrapolation for Inferred material is approximately 120m and averages around 80m.

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 400ppm cobalt equivalent to appropriately reflect the tonnes and grade of estimated blocks that will meet potential beneficiation process currently under consideration according to the Thackaringa JV Preliminary Feasibility Study (PFS).
		▪ Calculation of the cobalt cut-off grade is based on a simple cut-off formula typically used for pit optimisation:
		  ▪ Cut-off grade = processing cost/ (recovery * price).
		▪ The inputs for this are based on the following:
		  ▪ Cobalt Blue's current estimate of ore related costs at A$27/t ore.
		  ▪ Cobalt price of US$27/lb Co.
		  ▪ Exchange rate (A$ to US$) of 0.74.
		  ▪ Cobalt Blue's PFS estimate of cobalt recovery at 85%.
		▪ The resulting cobalt cut-off grade is 395 ppm Co which is rounded to 400 ppm for reporting purposes.
		▪ The formula for a cobalt equivalent of combined Co and S revenue is as follows:
		  ▪ CoEq ppm = Co ppm + (S ppm * (S price/ Co price) * (S recovery/ Co recovery))
		▪ For this calculation, SRK has assumed a cobalt price and recovery as above and a sulphur price of US$150/t and a sulphur recovery of 75%. This equates to:
		  ▪ CoEq ppm = Co ppm + (S% * 22.235).
		▪ The CoEq cut-off is the same as the Co cut-off, i.e. 400 ppm CoEq.

Criteria	JORC Code Explanation	Commentary
Cut-off parameters *(continued)*		▪ SRK has relied on Cobalt Blue's PFS assessment of the processing costs and cobalt recoveries and has not independently reviewed these aspects. ▪ 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.
		▪ Conceptual pit limit optimisations were completed on the 2018 Railway – Big Hill Mineral Resource and the Pyrite Hill 2019 Mineral Resource using Whittle Pit Limit Optimisation Software. A pit shell with a 1.3 revenue factor was subsequently used to constrain the reporting of the updated Mineral resources. Key assumptions for generation of pit shells included:
		▪ Resource Classifications: All classifications including unclassified
		  ▪ Whittle Model Base Setup: MiningOne Model used for 2018 Ore Reserves.
		  ▪ Price: US$27/lb Co
		  ▪ FX: $0.74 AUD:USD
		  ▪ Cobalt Recovery: 85%
		  ▪ Sulphur Price: US$150/t mine gate price
		  ▪ Sulphur Recovery: 75%
		  ▪ Minimum Mining Width: No Minimum Mining Width Constraint

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:
		  ▪ **Concentration of Pyrite from Ore**
		  The mined ore is crushed to p80 ~ 800–900 um (p100 1.2mm), and passed over gravity spirals to produce a pyrite concentrate. The gravity tails are screened and the fines fraction (<125 um) is sent to a scavenger flotation circuit to recover any sulphides. The use of gravity spirals, takes advantage of the coarse pyrite grains (p80 200-800 um), and limits costs associated with crushing and milling the ore, as would be the case for a typical flotation circuit requiring feed at p80 100–200 um.
		  In the PFS testwork program, 820 kg of ore at 607 ppm Co, 7.94% Fe, 7.58% S & 59.84% SiO_2 was trialled using a full-sized gravity spiral and a 14 L flotation cell. The recovery of cobalt to concentrate was 92%, at a grade of 3326 ppm. The ore was tested on a continuous pilot basis.
		  ▪ **Thermal Decomposition (Pyrolysis) Of Pyrite Concentrate**
		  The pyrite mineral is thermally decomposed into pyrrhotite and elemental sulphur by heating to 650–700°C. A nitrogen atmosphere is used to prevent any oxidation. The off-gas is collected, and cooled to recover the sulphur. In the PFS testwork program, 100 kg of concentrate grading 3326 ppm cobalt was processed in a custom built rotary furnace. Variations in operating conditions were tested, with the best results showing that >95% of the pyrite could be converted into pyrrhotite along with the simultaneous recovery of 40% of the head sulphur. The calcine was then passed through a magnetic separator to prepare a magnetic fraction containing pyrrhotite for leaching, and a non-magnetic fraction containing unreacted pyrite for recycle to the concentrator circuit.

Criteria	JORC Code Explanation	Commentary
Metallurgical factors or assumptions *(continued)*		▪ **Leaching and Production of Mixed Hydroxide Precipitate** The artificial pyrrhotite is leached in a low-temperature (130°C) and pressure (10–15 bar) autoclave. The resulting leach residue is screened, and the coarse fraction is sent for sulphur recovery by distillation or remelting. The fines fraction is discarded as tails from the process plant. The resulting leach solutions are treated to remove iron, copper and zinc before precipitating the cobalt as a mixed hydroxide (along with nickel and manganese). In the PFS testwork program, ~ 30 kg of calcine product from the furnace was leached in batches of 250g to 1kg. Variations in the operating conditions were tested, with the best results showing that 97-98% of the cobalt could be leached consistently from the pyrolysis calcine. ▪ **Refining of The Mixed Hydroxide Precipitate to Produce Cobalt Sulphate Crystals** In the PFS testwork program, variations on the ion-exchange and solvent extraction circuits were tested. The best conditions resulted in the production of cobalt sulphate heptahydrate grading ~20.5% with total impurities at ~800 ppm copper and 800 ppm manganese. Further optimisation of the parameters for the ion-exchange circuits, is expected to reduce the copper and manganese content reporting to the cobalt sulphate in future testwork.
Environmental 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.*	▪ Estimation of waste sulphur values into the block model has been completed for waste material in order to estimate the component of potentially acid forming material. Sulphur (S) has been estimated in both the Resource and waste material where information is available. A background S value of 0.05% has been included where no assay information is available and where expected lithology types are typically below the 0.05% S value. ▪ The construction of a suitable tailings facility is assumed for storing waste. It is considered a portion of water from such a facility could be recovered for re-use as process water.

Criteria	JORC Code Explanation	Commentary
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 1,527 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 (ie 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. Measured is defined as all Fresh material above a 0.8 kriging regression slope surface. Indicated is defined as all material above the 0.5 kriging regression slope surface together with all Transition material. Inferred is defined as all material above the 0 kriging regression slope surface and below the 0.5 kriging regression slope surface. - The classification reflects the Competent Person's view of the deposit.
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.

Criteria	JORC Code Explanation	Commentary
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 Measured, Indicated and Inferred classification applied. No additional confidence measures have been estimated or applied. ▪ Global change of support calculations indicate that the estimate for Railway and Big Hill still contains an amount of smoothing that may be underestimating the grade and overestimating the tonnage above Co 500ppm in the order of 5% to 10%. The Railway and Big Hill current estimate is therefore a compromise between local block and global grade and tonnage accuracy which is considered appropriate in the Competent Person's view and experience. ▪ Global change of support calculations indicate that the estimate for Pyrite Hill still contains a small amount of smoothing that may be overestimating the tonnage above Co 500ppm in the order of 5%. The current estimate is therefore considered to be globally robust at the current level of drilling density (approximately 40m x 40m in Measured areas). ▪ No mining or production has taken place.