

**Corporate Details:**

ASX Code: BAR

Market Cap: \$28.8M (Sep 30)

Cash: \$0.9M (Sep 30)

**Issued Capital:**

423.75 m ordinary shares

**Substantial Shareholders:**

FMR Investments Pty Ltd 19.3%

**Directors:****Executive Chairman & CEO:**

Gary Berrell

**Non-Executive Directors:**

Grant Mooney

Jon Young

**Company Secretary:**

Grant Mooney

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# Barra Resources Limited

## Activity Report for the Quarter Ended 30 September 2017

30 October 2017

### OVERVIEW

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**MT THIRSTY COBALT PROJECT**

- ❖ Mt Thirsty Scoping Study returns outstanding financial metrics over 21-year mine life.
- ❖ Study proves base case for sulphur dioxide (SO<sub>2</sub>) leaching enabling a low capex flowsheet.
- ❖ Ongoing metallurgical testing will target improving recoveries for both cobalt and nickel.
- ❖ Probable increase in recoveries likely to significantly increase current preferred NPV of A\$290 million.
- ❖ Global boom in Electric Vehicle demand continues unabated.

**BURBANKS GOLD PROJECT**

- ❖ 3D model of historic Main Lode workings developed to assist exploration targeting for follow-up deep drilling campaigns.
- ❖ Project wide target generation and prioritisation process commenced, building on current gold strategy and planned programs.

**PHILLIPS FIND GOLD PROJECT**

- ❖ Acquisition of new prospecting licences consolidates landholding.
- ❖ Completion of auger geochemical sampling program.
- ❖ Project wide target generation and prioritisation process commenced, building on current gold strategy and planned programs.

**CORPORATE**

- ❖ Discussions commenced with third parties to assist in funding the Mt Thirsty Cobalt Project through to production, focus on minimal dilution to JV partners.

# PROJECTS

## MT THIRSTY COBALT PROJECT

(50% Barra; 50% Conico Ltd – Joint Venture) [www.mtthirstycobalt.com](http://www.mtthirstycobalt.com)

### Activities

#### Scoping Study

The Mt Thirsty Scoping Study (Study) was released during the quarter (refer to ASX Release dated 5<sup>th</sup> October 2017) and returned a robust set of financial metrics over a 21-year mine life. The project is strongly leveraged to the emerging Electric Vehicle/Battery industry with exposure to the rebounding nickel market.

The Study was managed by Provide Advantage, with support from consultant engineers CPC Engineering, metallurgical support from ALS Metallurgy, and open pit optimisation and mine scheduling from CSA Global.

The Study was based on a sulphur dioxide (SO<sub>2</sub>) atmospheric leach circuit targeting enriched manganese-cobalt horizons, with a design capacity of 1.5Mtpa throughput.

The results of the Study confirm the MTJV's view that the Mt Thirsty Cobalt Project represents a long mine life, low capital and low operating cost mining opportunity in a stable jurisdiction with excellent logistics.

#### Scoping Study Outcomes

- Conventional open pit mining, low strip ratio of 1.5:1 over life of mine based on existing JORC (2004) Inferred and Indicated Mineral Resource of 32Mt @ 0.13% cobalt and 0.55% nickel.
- Plant throughput up to 1.5Mtpa to produce on average (as a mixed sulphide product - MSP) up to 1,280t of cobalt and up to 1,660t of nickel per annum over a 21-year mine life (LOM).
- First 5 years average annual production up to 1,900t of cobalt and 1,760t of nickel.
- Total LOM production up to 27,000t of cobalt and up to 35,000t of nickel.
- Low capital cost of AUD\$212 million (incl. A\$34 million contingency) with overall base case metal recoveries of 73% for cobalt and 21.5% for nickel.
- LOM operating costs projected to be AUD\$43/t of ore treated.
- The current spot prices for cobalt and nickel were escalated by 1.5%p.a. and 2.5%p.a. respectively, generating average prices of US\$72,200/t for cobalt and US\$15,500/t for nickel over the entire 21 year mine life. The LOM average cobalt price is only 20% over the current spot price, even though that price has doubled over the last year.
- Preferred case Post-Tax Net Present Value of AUD\$290M (within a range of AUD\$245M to \$335M) with a preferred case Internal Rate of Return (IRR) of 21.5% with an expected four-year pay back.

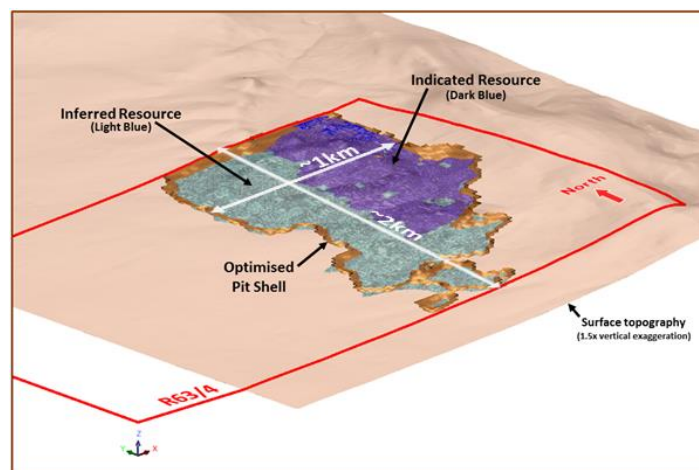


Figure 1: Proposed open-pit mining of the Mt Thirsty Cobalt Deposit.

## Background of Mt Thirsty Project and Cobalt Market

The Mt Thirsty Cobalt Project is located 20km north-northwest of Norseman, Western Australia.

The Project contains the Mt Thirsty Cobalt Deposit which has the potential to emerge as a significant cobalt supplier. Further information can be found at [www.mtthirstycobalt.com](http://www.mtthirstycobalt.com). In addition to the Cobalt Deposit, the Project also hosts primary nickel sulphide (Ni-S) mineralisation.

Barra has excellent exposure to the cobalt market through the 50% interest in the Mt Thirsty Cobalt Project.

Demand for cobalt looks encouraging as the world becomes more dependent on rechargeable power sources (Figure 2). Innovations with portable electronics and electric vehicle design are adding to this surging demand. However, the battery industry is also competing with demand for cobalt from producers of superalloys, aircraft turbines and chemical industries.

Global demand for Electric Vehicles is booming, potentially dramatically escalating demand for batteries, the majority of which contain cobalt. However supply of cobalt is uncertain due to:

- Over 60% of global supply coming from the politically unstable African countries such the Democratic Republic of Congo, Central African Republic and Zambia.
- Cobalt is largely a by-product of copper and nickel mining and there are an increasing number of mine closures and project deferments due to low commodity prices.

With potential supply constraints and surging demand many commentators see pricing pressure as a likely eventuality. The undeveloped Mt Thirsty Cobalt Project has a significant JORC (2004) reported Mineral Resource with potential to have a 21 year mine life. The Project is close to all necessary infrastructure (rail, road, power, water, and sea port) and, being in a mining orientated state, has the potential to attract a variety of interested parties including end users of cobalt. The Joint Venture partners are working collaboratively to exploit this joint opportunity.

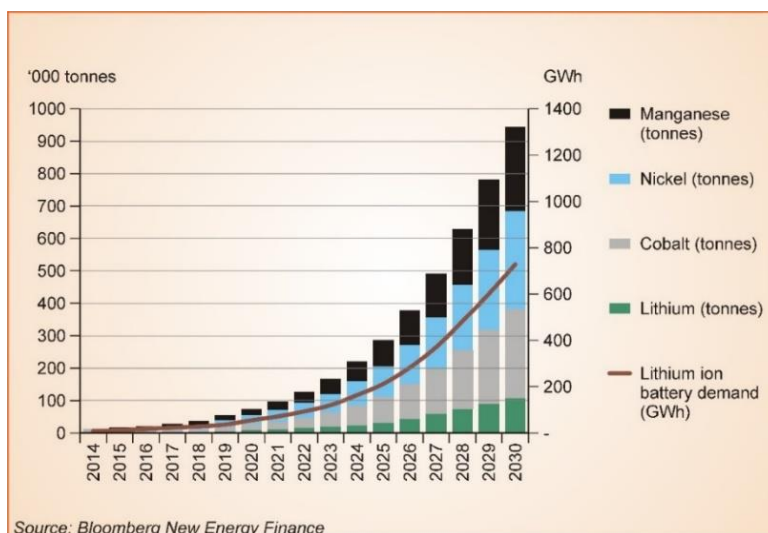


Figure 2: Global lithium-ion battery and materials demand forecast from EV sales, 2015-2030.

## BURBANKS GOLD PROJECT (WA)

(Includes \$25 per ounce Royalty on gold production from within the Birthday Gift Mine Area and 100% rights to Reservation Area within M15/161, Diagram 1)

### Activities

#### Reservation Area (100% Exploration and Mining Rights)

##### Main Lode

Three-dimensional (3D) modelling was undertaken during the period of the historic mine workings at Main Lode based on newly sourced historic (circa. 1913) level plan and long section data. Using the newly sourced data, the Company developed a spatially accurate 3D model (work in progress) of the old workings (Figure 3). The model will now be used in conjunction with recent drilling data and mineralisation model to assist with exploration targeting for follow-up deep RC and diamond drilling campaigns.

## Gold Strategy Update

During the period the Company commenced a portfolio review process that was aimed at refining and building on the current gold strategy, existing planned exploration programs, and incorporating results from recent aircore and RC drilling campaigns at Burbanks North and Main Lode. The process is nearly complete.

### Burbanks North

Phase 2 aircore drilling to continue testing the prospective Burbanks North Trend remains on track for completion over the next 6 to 12 months. The drilling will test an additional 600m of strike extent of the Burbanks North Trend to continue testing for shallow oxide gold mineralisation along strike to the north of the Burbanks North Deposit, and in particular advance the Fangjaw Prospect.

### Birthday Gift Mine Area (BGMA) (Royalty Only, Diagram 5)

The BGMA still remains on care and maintenance as owner and operator, Kidman Resources Limited (ASX: KDR) (Kidman), continues to pursue options regarding the sale of the BGMA.

KDR's announcement of the sale of its Burbanks Gold Mine affects the Birthday Gift Mining Area (BGMA) only. Barra's rights to the Burbanks mining lease including its royalty over the BGMA and its 100% rights to the Reservation Area will not be affected.

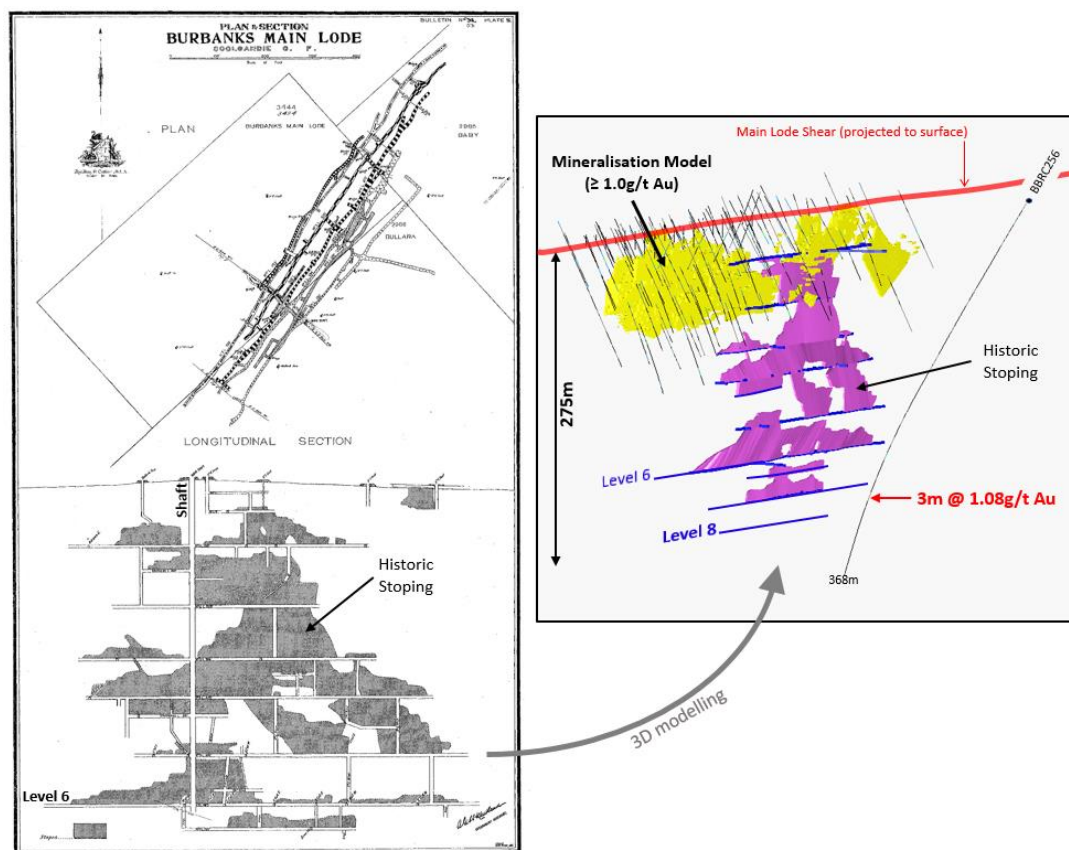


Figure 3: 3D model of Main Lode workings based historic (circa. 1913) level plan and long section.

## Background of Burbanks Project

The Burbanks Project is centred 9km southeast of Coolgardie, Western Australia.

The Company holds sole and exclusive exploration and mining rights (Reservation Rights) to certain areas within M15/161 (Diagram 1). The Reservation Rights include the historic Main Lode Gold Mine, which has produced 146,000t @ 18.3g/t Au for approximately 85,900ozs of gold between 1885 and 1914, as well as several important prospects including Burbanks North, Pipeline, Fangjaw and Salmon South. The Company also holds (100%) the highly prospective Kangaroo Hills leases which adjoin M15/161 to the north west.

The mining lease, M15/161, is owned by Kidman Resources Limited (ASX:KDR) who operate the Birthday Gift Underground Mine within the Birthday Gift Mining Area (BGMA). In addition to the Reservation Rights, the Company also has a royalty on all gold produced from within the BGMA.

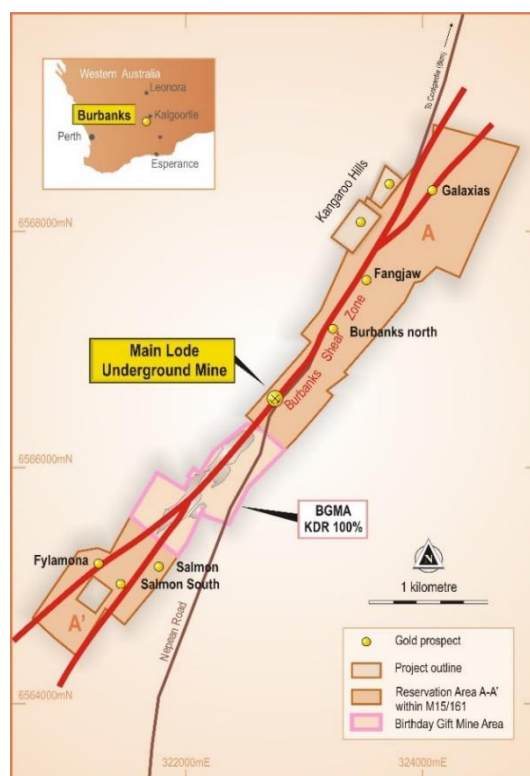


Diagram 1: Plan showing Reservation Area (A-A') and BGMA within M15/161.

## PHILLIPS FIND GOLD PROJECT (WA)

(100% Barra\*)

\*except for Carbine South tenements which are held 85% Barra

### Activities

#### Auger Geochemistry

The Company completed its auger geochemical sampling program during the period. Over 1,100 new samples have been collected and analysed for a more comprehensive suite of elements. Results for the second phase of the program are pending.

The new geochemical data will be used in conjunction with the recent 1:10,000 scale geological mapping data to assist with target identification and prioritisation for future drill testing.

#### Gold Strategy Update

During the period the Company commenced a portfolio review process that was aimed at refining and building on the current gold strategy, existing planned exploration programs, and incorporating results from mapping and auger geochemical sampling programs. The process is nearly complete.

### Background of Phillips Find Project

The Phillips Find Project is centred 50km north-northwest of Coolgardie, Western Australia.

The project covers over 10 kilometres in strike of prospective greenstone stratigraphy and includes the Phillips Find Mining Centre (PFMC) where approximately 33,000 ounces of gold has been produced between 1998 and December 2015 from three open-pit operations; Bacchus Gift, Newhaven and Newminster. Exploration potential within the project is excellent with numerous targets defined by auger geochemical anomalism, aeromagnetic interpretation and drilling.

The most recent mining activity at the PFMC was the Newminster open-pit which was mined in two stages between January 2013 and September 2015 producing approximately 9,000oz of gold. With open-pit mining now complete at Newminster, the Company is now focussed on advancing the underground potential of the PFMC with the aim developing a viable medium to long-term underground mining operation.



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## TENEMENTS

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The following tenement changes occurred during the quarter (see Appendix 1 for Tenement Listing at end of report):

- Bitter Bore: The Company surrendered P24/5176 and E24/207 following its decision not to exercise its option over the Bitter Bore project.
- Phillips Find: Prospecting licence P16/2401 was surrendered in lieu of defending an objection to an exemption from expedition application on the basis the licence was due to expire January 2018.
- Phillips Find: The Company acquired several prospecting licences at Phillips Find during the period: P16/2985-88, P16/2998-99, P16/3037-3043.

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## CORPORATE

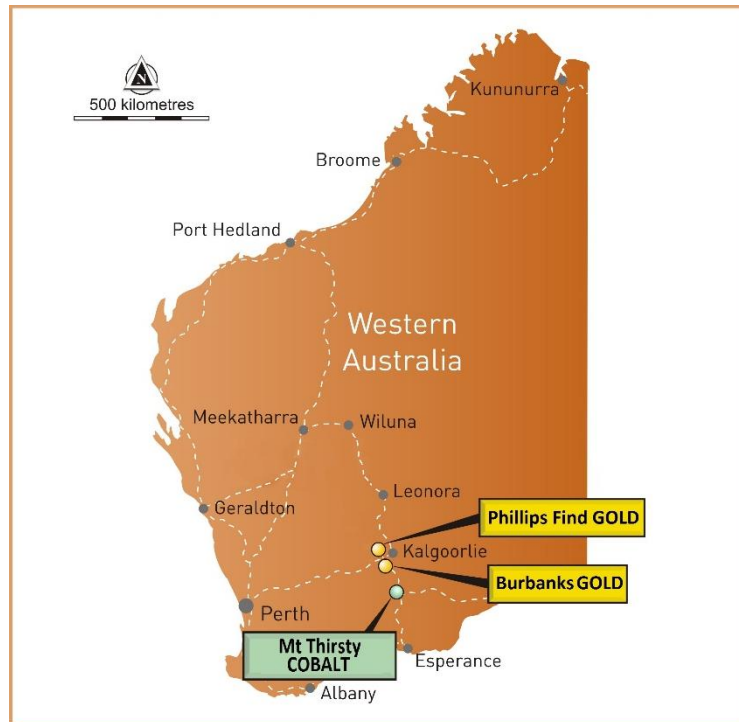
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### Recent Announcements

Date	Announcement
10/10/2017	Appendix 4G
10/10/2017	Annual Report to shareholders
5/10/2017	Mt Thirsty Cobalt Project Scoping Study
4/10/2017	Notice of Annual General Meeting/Proxy Form
22/09/2017	Full Year Statutory Accounts
8/08/2017	Mt Thirsty Metallurgical Testwork Update
31/07/2017	Quarterly Cashflow Report
31/07/2017	Quarterly Activities Report



**GARY BERRELL**  
Executive Chairman



Project Location Map

## APPENDIX

### TENEMENT LISTING

Tenement	Project	Location	Change in Interest (%) during Quarter			Comments
			End of Quarter	Acquired	Disposed	
M15/161	Burbanks	WA	0	Subject to Reservation Rights and Royalty only (Figure 2)		
P15/5249		WA	100			
P15/5412		WA	100			
E63/1267	Mt Thirsty	WA	50			
E63/1790		WA	50			
P16/2045		WA	50			
R63/4		WA	50			
P24/5176	Bitter Bore	WA	0		100	Surrendered
E24/207		WA	0		100	Surrendered
M16/130	Phillips Find	WA	100			
M16/133		WA	100			
M16/168		WA	100			
M16/171		WA	100			
M16/242		WA	100			
M16/258		WA	100			
M16/550		WA	100			
P16/2401		WA	100			
P16/2422		WA	85			15% - Hayes Mining Pty Ltd
P16/2423		WA	85			
P16/2424		WA	85			
P16/2425		WA	85			
P16/2578		WA	0		100	Surrendered
P16/2702		WA	100			
P16/2785		WA	100			
P16/2786		WA	100			
P16/2985		WA	0	100		
P16/2986		WA	0	100		
P16/2987		WA	0	100		
P16/2988		WA	0	100		

Tenement	Project	Location	Change in Interest (%) during Quarter			Comments
			End of Quarter	Acquired	Disposed	
P16/2989		WA	100			
P16/2990		WA	100			
P16/2991		WA	100			
P16/2992		WA	100			
P16/2993		WA	100			
P16/2994		WA	100			
P16/2995		WA	100			
P16/2998		WA	0	100		
P16/2999		WA	0	100		
P16/3037		WA	0	100		
P16/3038		WA	0	100		
P16/3039		WA	0	100		
P16/3040		WA	0	100		
P16/3041		WA	0	100		
P16/3042		WA	0	100		
P16/3043		WA	0	100		
E30/333	Riverina Nickel JV	WA	0	30% Interest in Nickel Rights Only (*Nickels Rights retained to certain area of M30/256 only)		
M30/127		WA	0			
M30/133		WA	0			
M30/182		WA	0			
M30/256*		WA	0			
P30/1074		WA	0			
P30/1112		WA	0			
P30/1113		WA	0			
P30/1114		WA	0			
P30/1115		WA	0			
P30/1116		WA	0			
P30/1117		WA	0			
P30/1118		WA	0			
P30/1119		WA	0			
P30/1120		WA	0			



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**Abbreviations**

AC=Aircore, Au=gold, Co=cobalt, DEC=Department of Environment and Conservation, DD=Diamond, DMP=Department of Mines and Petroleum, g=grams, g/t=grams per tonne, kg=kilograms, km=kilometres, lb/s=pound/s, LME=London Metal Exchange, lt=litre, m=metres, min=minutes, ml=millilitre, mm=millimetre, Mn=manganese, Mt=million tonnes, Ni=nickel, oz/ozs=ounce/s, pH=measure (1-10) of acidity (1 acid, 7 neutral, 10 basic), ppb=parts per billion, ppm=parts per million, RAB=Rotary Air Blast, RC=Reverse Circulation, RL=Reduced Level, t=tonnes, tpa=tonnes per annum  $\mu$ m=micro metres, @= grading, %=percent, °C=degrees celsius.

**Disclaimer**

*The interpretations and conclusions reached in this report are based on current geological theory and the best evidence available to the authors at the time of writing. It is the nature of all scientific conclusions that they are founded on an assessment of probabilities and, however high these probabilities might be, they make no claim for complete certainty. Any economic decisions that might be taken on the basis of interpretations or conclusions contained in this report will therefore carry an element of risk.*

*It should not be assumed that the reported Exploration Results will result, with further exploration, in the definition of a Mineral Resource.*

**Competent Persons Statement**

*The information in this report which relates to Exploration Targets, Exploration Results and Mineral Resources for the Phillips Find and Burbanks Projects is based on and fairly represents information compiled by Mr Gary Harvey who is a Member of the Australian Institute of Geoscientists and a full-time employee of Barra Resources Ltd. Mr Harvey has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which he is undertaking 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" (the JORC Code). Mr Harvey consents to the inclusion in the report of the matters based on his information in the form and context in which it appears.*

*The information in this report that relates to Exploration Targets, Exploration Results and Mineral Resources for the Mt Thirsty Project is based on and fairly represents information compiled by Michael J Glasson and Robert N Smith, Competent Persons who are members of the Australian Institute of Geoscientists. Mr Glasson and Mr Smith are employees of Tasman Resources Ltd and in this capacity act as part time consultants to Conico Ltd. Mr Glasson and Mr Smith hold shares in Conico Ltd. Mr Glasson and Mr Smith have sufficient experience which is relevant to the style of mineralisation and type of the deposits under consideration and to the activity being undertaken to qualify as Competent Persons as defined in the 2012 Edition of the 'Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves'. Mr Glasson and Mr Smith consent to the inclusion in the report of the matters based on their information in the form and context in which it appears.*

**Forward Looking Statements Disclaimer**

*This report contains forward-looking statements that involve a number of risks and uncertainties. These forward-looking statements are expressed in good faith and believed to have a reasonable basis. These statements reflect current expectations, intentions or strategies regarding the future and assumptions based on currently available information. Should one or more of the risks or uncertainties materialise, or should underlying assumptions prove incorrect, actual results may vary from the expectations, intentions and strategies described in this report. No obligation is assumed to update forward-looking statements if these beliefs, opinions and estimates should change or to reflect other future developments.*