

# ASX ANNOUNCEMENT 28th January 2020

# BARRA RESOURCES LIMITED

A.B.N. 76 093 396 859

# **Corporate Details (Dec 31):**

ASX Code:

BAR

Market Cap:

\$11.9M @ 2.0c

Cash:

\$1,180,000

#### **Issued Capital:**

596.5M Ordinary Shares 38M Options

#### **Substantial Shareholders:**

FMR Investments 14.0% Mineral Resources Ltd 9.6%

#### **DIRECTORS**

MD & CEO: Sean Gregory Chairman: Gary Berrell Non-Exec: Jon Young Non-Exec: Grant Mooney

# **PROJECTS**

Mt Thirsty Co-Ni (50%) Coolgardie Au (100%)

## **CONTACT DETAILS**

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# **ASX QUARTERLY REPORT**

# **QUARTER ENDING 31 DECEMBER 2019**

#### MT THIRSTY COBALT NICKEL PROJECT

- Test work demonstrates reduced nickel losses
- Mine pits and tailings design complete
- Wood finalising PFS capital and operating cost estimates
- All supporting PFS chapters in final draft

#### **BURBANKS GOLD PROJECT**

- 24 hole (3,913m) RC drilling campaign completed at Burbanks
- High-grade intersections immediately down-plunge of mining stopes enhance the opportunity identified in recent scoping study, including:
  - BBRC299 3m @ 24.69g/t Au from 167m down-hole
  - o BBRC303 8m @ 4.10g/t Au from 159m down-hole
  - o BBRC300 2m @ 16.30g/t Au from 173m down-hole
- Potential discovery of a new lode at depth between Main Lode and Burbanks North, including:
  - o BBRC292 3m @ 5.38g/t Au from 185m down-hole, and
  - BBRC294 4m @ 2.58g/t Au from 168m down-hole

# PHILLIPS FIND GOLD PROJECT

 With walk-up targets at Diablo and Barra's gold focus narrowing on Burbanks, the Phillips Find Project has been identified as an ideal farm in for a well-funded gold developer

# **CORPORATE**

- Share Purchase Plan and Share Placement raised \$1,152,500 before expenses
- Research and Development rebate of \$103,000 received during the current quarter
- Barra to loan Conico up to \$500,000 to facilitate completion of PFS. As at end of guarter, \$174,000 has been drawn down.
- As at the end of the quarter, Barra has \$1,180,000 in cash



Figure 1: Barra Project Location Plan

## MT THIRSTY COBALT NICKEL PROJECT

(50% Barra, 50% Conico – Mt Thirsty Joint Venture, MTJV)

The Mt Thirsty Cobalt Project is located 16km north-northwest of Norseman, Western Australia (Figure 1).

The Project contains the Mt Thirsty Cobalt-Nickel (Co-Ni) Oxide Deposit that has the potential to emerge as a significant cobalt producer. In addition to the Co-Ni Oxide Deposit, the Project also hosts nickel sulphide (Ni-S) mineralisation.

Demand for cobalt looks very encouraging as the world becomes more dependent on rechargeable power sources for portable electronics and electric vehicles. In addition, the battery industry is also competing with demand for cobalt from producers of superalloys, aircraft turbines and chemical industries.

The undeveloped Mt Thirsty Cobalt Project has a significant resource with a potential to have a long 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. Mt Thirsty has the potential to become a major supplier to the burgeoning battery supply chain.

The great advantage of Mt Thirsty compared to other potential cobalt operations is the nature of the resource, being a flat lying, continuous and thick deposit starting from near surface to around 70 metres below surface. Due to intense oxidation, the deposit is very soft, fine grained and low in silica.

The Mount Thirsty Joint Venture (MTJV) is progressing a Pre-Feasibility Study (PFS) on the project utilising industry leading consultants led by Amec Foster Wheeler Australia Pty Ltd, trading as Wood.

The Mt Thirsty Project is highly leveraged to cobalt prices with approximately 80% of potential revenue being from cobalt; far higher than other nickel laterite projects.

Conico Ltd is the operator of the MTJV and the Joint Venture has appointed Mr Sean Gregory, MD and CEO of Barra Resources Ltd as Manager of the Mt Thirsty Project Prefeasibility Study (PFS).

#### **ACTIVITIES**

# Further Metallurgical Testwork

Mixed Sulphide Precipitation testwork was completed during the quarter.

Five sighter tests were completed on one litre solutions at 70 degrees celsius. NaHS addition was set at 107-125% of the stoichiometric requirement and NaOH addition was 0.54-0.80kg/m³. The pH was increased gradually from 3.2 in the first test to 3.8 in the fifth test. Cobalt precipitation increased from 75.7% to 94.5% and nickel precipitation increased from 91.7% to 99.4% from the first to the fifth sighter test.

The bulk 17.2 litre sample from the secondary neutralisation test was then run at 70 degrees celsius and pH 3.8. NaHS and NaOH were added in excess, at 164% of the stoichiometric requirement and 0.93kg/m³ respectively, to ensure the target precipitation was achieved. Both cobalt and nickel precipitation exceeded 99.8%, demonstrating that minimal losses are achievable in mixed sulphide precipitation.

This is an improvement on previous assumptions for Nickel losses during mixed sulphide precipitation, which will be revised downwards for the previously assumed 2% to the now demonstrated 1%.

Cobalt losses during mixed sulphide precipitation will remain as previously assumed at 2%

Assumed losses in the Counter Current Decantation (CCD) will remain at 2% for both payable metals. The CCD loss estimate can only be refined with continuous piloting, which will be part of forward work post PFS.

The only testwork still underway is Manganese precipitation, both as an oxide for disposal to allow process water recycling and as a carbonate as a potential future by-product.

# Mine Planning

The pit designs have been finalised. 18 pit stages have been designed based on the best known revenue and operating cost assumptions (Figure 2). These multiple stages will allow the scheduling of the highest value material first. They will also allow the later stages to be not mined should economic conditions prove less favourable. As a final step in the PFS, the final revenue and operating cost assumptions will be used to refine the final mine schedule to be published in the PFS.

The preliminary mine schedule was sent out as a request for quotation. Mining quotes have been received from Hamptons Transport Services Pty Ltd and MACA Ltd. A third major mining contractor is also planning to provide a quote.

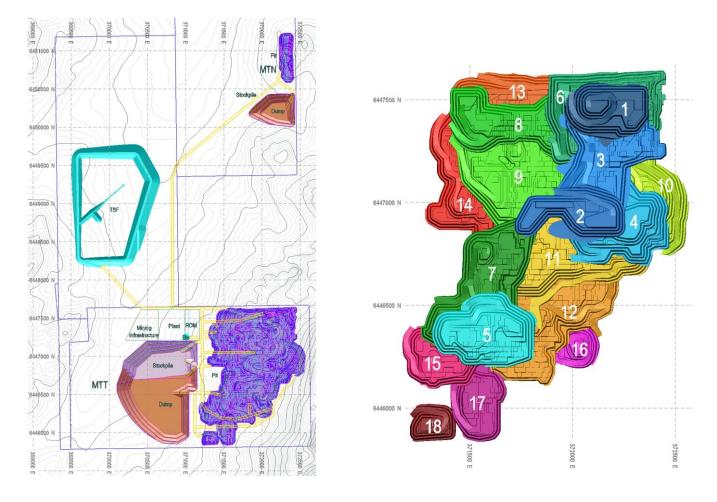


Figure 2 – Preliminary mine layout showing pits, dumps, plant, infrastructure and TSF (left) and pit stages (right).

# Tailings Design

The tailings design has now been finalised. The Tailings Storage Facility (TSF) will be constructed using the downstream stacking method, thereby avoid any risks of stacking tailings walls above unconsolidated wet tailings. The embankments will be constructed primarily using mine waste fill. Low permeability clay sourced locally and from the mine waste will be used to line the TSF. The tailings dam has been designed to accommodate 21.6 Mm³ of tailings up to a maximum height of 35m above natural ground surface. The TSF footprint is large enough for up to 11 years of tailings production, with sufficient real estate available on the mining tenements within the topographical constraints for future expansions (Figure 2).

# **Process Design**

The flowsheet for the PFS is ostensibly unchanged from that proposed during the scoping study other than being increased in scale from 1.5 Mtpa to 1.8 Mdtpa feed rate or 2.3Mwtpa to bring revenue forward and maximise the NPV of the project. The basic process steps and PFS processing plant layout are shown in Figure 3 and Figure 4.



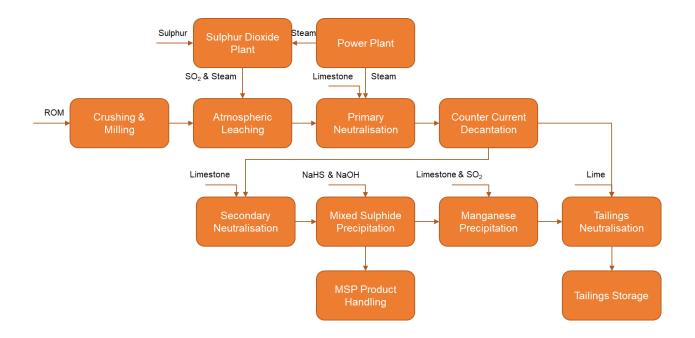


Figure 3 – Schematic Process Flowsheet for Mt Thirsty

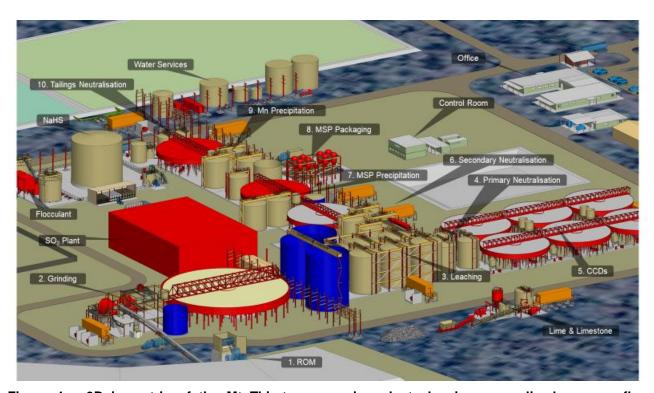


Figure 4 – 3D isometric of the Mt Thirsty processing plant showing generalised process flow (numbered labels)



# Capital and Operating Cost Estimates

Capital and operating cost estimates are being prepared by Wood with all major equipment items being based on multiple vendor quotes.

# Report Writing

The following chapters are in final draft: Geology, Mineral Resources, Environment and Community, Marketing, Hydrogeology and Tailings. Write up of Metallurgy, Mining, Process Design, and Infrastructure chapters has commenced.

#### Land Access

All biological surveys sufficient to support approvals for the project are complete.

Granted tenure, land access agreements and program of works approvals are now in place for water search drilling for the project. This activity has however been rescheduled as a post-PFS activity.

Tenement applications for mining, roads and infrastructure are also moving through the process towards grant.

Discussion are continuing with the Ngadju Traditional Owners towards a Native Title agreement.

#### Cobalt-Nickel Market

Barra's progressive work packages are being undertaken against a backdrop of volatile commodity price movements with gold holding last year's gains above A\$2,200 per ounce and nickel trading at US\$13,800 per tonne.

However, cobalt has stubbornly held levels at around US\$32,000 per tonne. This has been despite mine closures and production challenges reported at the world's 3 largest cobalt mines in the DRC.

Most commodity price forecasters continue to predict that cobalt prices will rise with increased Electric Vehicle (EV) demand in 2020. Cobalt is often cited as the metal most heavily leveraged to the electric vehicle revolution due to its scarcity. Whilst EV demand has continued to accelerate in Europe, demand in China in the second half of 2019 was impacted by the planned reduction of electric vehicle subsidies. Promisingly, the Chinese government has now scrapped further reductions previously planned for 2020.

The Tesla Model 3 has dominated EV sales in the US and now accounts for approximately half of all EV sales there. This vehicle represents a compelling value proposition for superior performance and prestige compared to similarly priced European luxury cars. New models expected to debut from traditional OEMs may be what is required for another kick in EV sales growth in this market and hence cobalt commodity prices.

Longer term, the fundamentals of the cobalt and nickel markets remain exceptional with very few high-quality projects such as Mt Thirsty expected to be available to meet the demand driven by EVs.

### **Next Steps**

Once the capital and operating cost estimates are finalised, one final version of the mine schedule will be run and the project financial model will be updated. At this point the PFS will be ready for publication, marking a significant milestone for the MTJV and opening the door to project partnering with tier one mining and refining firms looking to secure sustainable sources of cobalt. Importantly, the completion of the PFS will also see a significant reduction in cash burn on the project until the future development partner for the project is agreed and can stamp their mark on the next phase of study.



# **BURBANKS GOLD PROJECT**

(100% Barra)

#### **ACTIVITIES**

Barra's 100% owned Burbanks Gold Project is located just 9 km south of Coolgardie in Western Australia (Figure 5).

# Main Lode Drilling Results

The recent drilling program at Main Lode saw 24 RC drill holes drilled for 3,913m. The program followed highly successful drilling programs in 2017 (refer ASX:BAR release dated 14/03/2017) and 2018 (refer ASX:BAR release dated 14/06/2018), an inaugural Mineral Resource estimate for Main Lode of 29,900 Oz at 2.59 g/t gold (refer ASX:BAR release dated 30/10/2018) and a positive scoping study (Refer ASX:BAR release dated 23/9/2019).

The key objectives of this program were twofold: Firstly, to extend the existing Mineral Resource and areas identified for potential stoping in the scoping study between the historic Main Lode and Birthday Gift Gold Mines from its current depth of 100m below surface to 200m below surface (Figure 6).

Secondly, to extend the strike of the Main Lode system by targeting the gap between Main Lode and the Burbanks North deposit and, if successful and continuity can be demonstrated, establishing a continuous 3.5km of mineralised strike length along the Burbanks Shear Zone (Figure 6).

Ten holes were drilled below the existing Mineral Resource between Main Lode and Birthday Gift. 6 holes intersected widths between 2 and 9m (down-hole) grading

d Kalgoorlie Burbanks Perth Burbanks north Main Lode Underground Mine 6566000mN Birthday Gift Underground Mine Fylamona Salm Salmon South Gold prospect Project outline M15/161 324000mE

Figure 5 - Burbanks Location Plan

between 1.0 and 24.7g/t Au (Figure 6). Pleasingly, intersections in BBRC299 (2m @ 16.3g/t Au) and BBRC300 (3m @ 24.67g/t Au) confirmed high-grade mineralisation exists away from the historical workings and downplunge from an area identified for stoping in the recently completed scoping study.

One (1) hole, BBRC303 intersected 8m @ 4.01g/t Au (incl. 4m @ 7.23g/t Au) from 159m down-hole, and 5m @ 1.61g/t Au (incl. 2m @ 3.14g/t Au) from 176m approximately 100m down-plunge of previously identified high-grade mineralisation (refer to drill programs completed in 2017 and 2019) and another area identified for stoping in the recently completed scoping study. Unfortunately, BBRC303 ended in mineralisation as the hole was abandoned due to difficult ground conditions. Mineralisation remains open and presents a clear target area for follow-up drilling.

Thirteen (13) holes were drilled between Main Lode and Burbanks North on an approximate 50m x 50m spacing. Drilling did not identify any significant mineralisation within the top 100m below surface level.

A significant fault-zone (Fault), up to 40m thick (down-hole width), was intersected in holes BBRC288, 289, 291 and 295. The fault appears to have occurred pre-mineralisation however it is not clear at this stage what



influence or control the fault may or may not have on gold mineralisation as it is not mineralised itself yet structures which pass through the fault are weakly mineralised with zones of low-level gold encountered.

However, several other smaller scale faults (i.e. thin), of the same orientation have been identified in the Christmas and Lady Robinson Pits. When overlaid on long section, there appears to be a relationship between these faults and a southerly plunge to mineralisation (Figure 6). Further work is required to verify this observation as it may have significant implications for future drill targeting.

On the north side of the Fault, BBRC292 and BBRC294 intersected 3m @ 5.38g/t Au and 4m @ 2.58g/t Au respectively, associated with sheared diorite, at depth and over 100m south of Burbanks North. Importantly, the intersections both occurred near the junction between the eastern footwall structure at Burbanks North (which dips ~65° west) and the Main Lode structure (which dips ~75-80° east) at depth and almost precisely where predicted. Furthermore, mineralisation remains open at depth and presents another 'deeps' target and may potentially represent the discovery of a new lode at depth between Main Lode and Burbanks North.

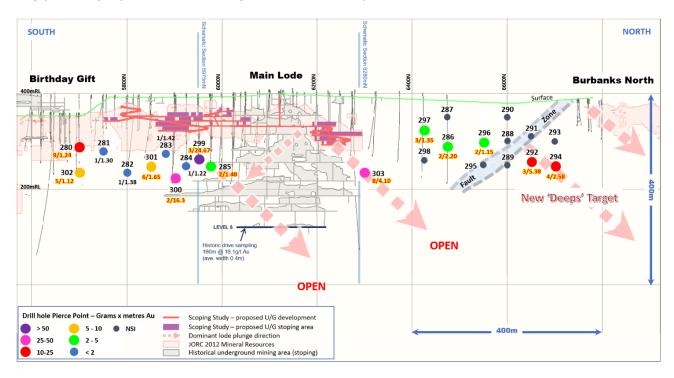


Figure 6 - Schematic long section of Main Lode showing drill hole pierce points

The depth extensions of Birthday Gift, Main Lode and Burbanks North (potentially intersected in BBRC 292 and 294) now become high priority follow up RC drilling targets for Barra in 2020.

## **Potential Mining Opportunities**

Barra completed a positive scoping study on the Burbanks Project in 2019 that identified the recently discovered Resources at Main Lode as the highest priority area for mining (Refer ASX:BAR release dated 23/9/2019). This latest round of drilling is of elevated significance due to the proximity and continuity of the mineralised results to areas identified for potential stoping in the scoping study. Barra remains in discussions with potential mining partners to find the right risk and reward mix for a future restart in mining operations.



# PHILLIPS FIND GOLD PROJECT

(100% Barra)

#### **ACTIVITIES**

Barra's 100% owned Phillips Find Gold Project is located 50km north 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 33,000oz of gold was produced between 1998 and 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, mapping and drilling.

Tenements have now been granted at Diablo, a highly prospective target under shallow alluvial cover, not dissimilar to the Truth prospect which was successfully tested by Barra in 2018. Diablo is now a walk-up target that is ready to drill.

With Burbanks clearly a higher priority for Barra with short and long-term opportunities, and therefore demanding a greater part of Barra's gold budget, Barra has identified that Phillips Find would be most suitable for a farm out. A farm out would allow Barra to direct its gold budget to Burbanks and still participate in the excellent exploration upside available at Phillips Find.

Phillips Find would be an ideal target for a well-funded gold producer or developer to farm into by funding drilling programs to earn a majority interest in the project.

# **CORPORATE**

Barra successfully completed a Share Purchase Plan (SPP) and a concurrent Share Placement during the quarter. Subscriptions from eligible shareholders totalled \$954,000, coming from more than 200 shareholders who collectively own more than 40% of Barra shares. An additional \$198,000 was received for the Placement from clients of Shaw and Partners stockbrokers to bring the total raising to \$1,152,500 before expenses. Shaw and Partners were paid a 6% fee on the Placement only. A total of 57,625,000 shares were issued at 2.0 cents.

The cash inflows were also supplemented by a research and development refund of \$103,000 during the quarter.

The previously announced loan of up to \$500,000 from Barra to Conico to facilitate the completion of the PFS was drawn down by \$174,000 during the quarter.

Barra's cash balance stands at \$1,180,000 at the end of December which is sufficient to complete the Mt Thirsty PFS and for ongoing gold exploration.

**SEAN GREGORY** 

Managing Director & CEO

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Please refer to our recently updated website for background information on each of Barra's projects.



# **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 based on interpretations or conclusions contained in this report will therefore carry an element of risk.

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.

# **COMPETENT PERSONS' STATEMENTS**

The information in this report which relates to Exploration Targets, Exploration Results and Mineral Resources for the Phillips Find and Burbanks Gold Projects is based on and fairly represents information compiled by Mr Gary Harvey a full-time employee of Barra Resources Ltd who is a Member of the Australian Institute of Geoscientists.

The information in this report which relates to Mineral Resources at Main Lode and Burbanks North is based on information compiled by Mr Andrew Bewsher full-time employee of BM Geological Services Pty Ltd who is a Member of the Australian Institute of Geoscientists.

The information in this report which relates to Mineral Resources at Birthday Gift and Christmas Pit is based on information compiled by Mr Richard Buerger, a full-time employee of Mining Plus Pty Ltd who is a Member of the Australian Institute of Geoscientists.

The information in this report that relates to Exploration Results for the Mt Thirsty Cobalt-Nickel Project is based on and fairly represents information compiled by Michael J Glasson, a Competent Person who is a member of the Australian Institute of Geoscientists. Mr Glasson is an employee of Tasman Resources Ltd and in this capacity acts as part time consultant to Conico Ltd and the MTJV.

The information in this report which relates to the metallurgical test-work for Exploration Results for the Mt Thirsty Cobalt-Nickel Project is based on and fairly represents information compiled by Mr Dean David who is a Member of the Australian Institute of Mining and Metallurgy and a full-time employee of Wood. Mr David 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 which relates to Mineral Resources at Mt Thirsty Cobalt-Nickel Project is based on information provided to and compiled by Mr David Reid, a Competent Person who is a full-time employee of Golder Associates Pty Ltd, and a Member of the Australasian Institute of Mining and Metallurgy.

Messer's Harvey, Bewsher, Buerger, Glasson, David, and Reid have sufficient relevant experience to the style of mineralisation and type of deposits under consideration and to the activity for which they are undertaking to qualify as a Competent Person as defined in the JORC Code (2012 Edition).

The company is not aware of any new information or data that materially affects the information presented and that the material assumptions and technical parameters underpinning the estimates continue to apply and have not materially changed. The company confirms that the form and context in which the Competent Persons' findings are presented have not been materially modified from the original market announcements.



# **APPENDIX 1 - ASX ANNOUNCEMENTS DURING THE QUARTER**

| Date             | Announcement   |
|------------------|--|
| 2 October, 2019  | Notice of Annual General Meeting - Proxy Form                |
| 11 October, 2019 | Reminder Share Purchase Plan Closing Soon                    |
| 18 October, 2019 | Share Purchase Plan Offer Extended                           |
| 21 October 2019  | Drilling underway at Burbanks Gold Mine                      |
| 31 October 2019  | Share Purchase Plan and Placement Raises \$1.15M,            |
| 1 November 2019  | 2019 Annual General Meeting CEO Presentation                 |
| 21 November 2019 | 2019 Global Critical Mining and Minerals Summit Presentation |
| 12 December 2019 | High-Grade Results Augment Burbank Mining Opportunity        |

# **APPENDIX 2 - TENEMENT LISTING**

| Tenement | Гепетент Project   |          | Change in Interest (%) during Quarter |          |          |  |
|----------|--------------------|----------|---------------------------------------|----------|----------|--|
| renement | enement Project LC | Location | End of<br>Quarter                     | Acquired | Disposed |  |
| E63/1267 |                    | WA       | 50                                    |          |          |  |
| E63/1790 | Mt Thirsty         | WA       | 50                                    |          |          |  |
| P16/2045 | Wit Thirsty        | WA       | 50                                    |          |          |  |
| R63/4    |                    | WA       | 50                                    |          |          |  |
| M15/161  |                    | WA       | 100                                   |          |          |  |
| P15/5249 | Burbanks           | WA       | 100                                   |          |          |  |
| P15/5412 | -                  | WA       | 100                                   |          |          |  |
| M16/130  |                    | 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                                   |          |          |  |
| P16/2702 | -                  | WA       | 100                                   |          |          |  |
| P16/2785 | Phillips Find      | WA       | 100                                   |          |          |  |
| P16/2786 | -                  | WA       | 100                                   |          |          |  |
| P16/2985 | -                  | WA       | 100                                   |          |          |  |
| P16/2986 |                    | WA       | 100                                   |          |          |  |
| P16/2987 |                    | WA       | 100                                   |          |          |  |
| P16/2988 |                    | WA       | 100                                   |          |          |  |
| P16/2989 | 1                  | WA       | 100                                   |          |          |  |
| P16/2990 | 1                  | WA       | 100                                   |          |          |  |
| P16/2991 |                    | WA       | 100                                   |          |          |  |



| Tanamant | Dunings | Location - | Change in Interest (%) during Quarter |          |          |  |
|----------|---------|------------|---------------------------------------|----------|----------|--|
| Tenement | Project |            | End of<br>Quarter                     | Acquired | Disposed |  |
| P16/2992 |         | WA         | 100                                   |          |          |  |
| P16/2998 |         | WA         | 100                                   |          |          |  |
| P16/2999 |         | WA         | 100                                   |          |          |  |
| P16/3037 |         | WA         | 100                                   |          |          |  |
| P16/3038 |         | WA         | 100                                   |          |          |  |
| P16/3039 |         | WA         | 100                                   |          |          |  |
| P16/3040 |         | WA         | 100                                   |          |          |  |
| P16/3041 |         | WA         | 100                                   |          |          |  |
| P16/3042 |         | WA         | 100                                   |          |          |  |
| P16/3043 |         | WA         | 100                                   |          |          |  |
| P16/3084 |         | WA         | 85                                    |          |          |  |
| P16/3085 |         | WA         | 85                                    |          |          |  |
| P16/3086 |         | WA         | 85                                    |          |          |  |
| P16/3087 |         | WA         | 85                                    |          |          |  |
| P16/3088 |         | WA         | 100                                   | 100      |          |  |

# **JORC CODE, 2012 EDITION - TABLE 1 REPORT**

# **SECTION 1 SAMPLING TECHNIQUES AND DATA**

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

| Criteria               | JORC Code explanation   | Commentary  |
|------------------------|---|---|
| Sampling<br>techniques | <ul> <li>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.</li> <li>Include reference to measures taken to ensure sample representivity and the appropriate calibration of any measurement tools or systems used.</li> <li>Aspects of the determination of mineralisation that are Material to the Public Report.</li> <li>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.</li> </ul> | <ul> <li>1m samples were split and collected at the drill rig.</li> <li>The remainder of the drill cuttings were immediately bagged and sealed in air tight bags to minimise drying and agglomeration of the clays. These samples were later used for compositing and metallurgical test-work.</li> <li>The split samples were then dried and pulverised and a 40gm sub sample analysed for Co, Ni, Mn, Zn, Mg, Al &amp; Fe using a four-acid digest with an ICP OES finish.</li> </ul> |
| Drilling<br>techniques | <ul> <li>Drill type (eg core, reverse circulation, open-hole<br/>hammer, rotary air blast, auger, Bangka, sonic, etc)<br/>and details (eg core diameter, triple or standard tube,<br/>depth of diamond tails, face-sampling bit or other type,<br/>whether core is oriented and if so, by what method,<br/>etc).</li> </ul>   | <ul> <li>RC drilling was completed with a 165mm face sampling hammer.</li> <li>AC Drilling was completed with a 102mm blade bit. The cuttings are lifted to the surface up the inner tube of the drill bit in the same manner as RC drilling.</li> <li>All drilling was above the water table and there was no water injection used.</li> </ul>   |
| Drill sample           | Method of recording and assessing core and chip sample recoveries and results assessed.   | Sample recovery was generally excellent in dry<br>powdery clay which hosts the upper portion of the   |



| Criteria  | JORC Code explanation   | Commentary  |
|---|---|---|
| recovery  | <ul> <li>Measures taken to maximise sample recovery and ensure representative nature of the samples.</li> <li>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.</li> </ul>   | mineralisation. Any intervals with obvious poorer sample recovery were recorded in the logs. These were mostly in greenish puggy clay sections beneath the oxidised zone in the lower portion of the deposit.  • The cyclone was cleaned between each six metre rod (RC) and three metre rod (AC) and every metre for wet samples; riffle splitters were cleaned as required. There is no obvious relationship between grade and sample recovery. Most of the material drilled is strongly weathered, soft and fine grained. No significant sample bias is expected to have occurred due to preferential loss of fine/coarse material.  |
| Logging   | <ul> <li>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.</li> <li>Whether logging is qualitative or quantitative in nature. Core (or costean, channel, etc) photography.</li> <li>The total length and percentage of the relevant intersections logged.</li> </ul>  | <ul> <li>Logging is conducted in detail at the drill site by the site geologist, who routinely records weathering, lithology, alteration, mineralisation, or any other relevant features. It is considered to be logged at a level of detail to support appropriate Mineral Resource estimation and mining studies.</li> <li>All holes were logged in the field by MTJV geologists who have a long association and familiarity with the deposit.</li> <li>Logging is qualitative in nature.</li> <li>The entire length of each hole was logged in 1m intervals.</li> </ul>  |
| Sub-sampling<br>techniques<br>and sample<br>preparation | <ul> <li>If core, whether cut or sawn and whether quarter, half or all core taken.</li> <li>If non-core, whether riffled, tube sampled, rotary split, etc and whether sampled wet or dry.</li> <li>For all sample types, the nature, quality and appropriateness of the sample preparation technique.</li> <li>Quality control procedures adopted for all subsampling stages to maximise representivity of samples.</li> <li>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.</li> <li>Whether sample sizes are appropriate to the grain size of the material being sampled.</li> </ul> | <ul> <li>All RC drill chips were split with a rotary splitter. The remaining sample was bagged and placed on the ground.</li> <li>Sample preparation followed industry standard practice of drying, coarse crushing to -6mm, before pulverising to 90% passing 75 micron.</li> <li>To meet QAQC requirements duplicates were placed at irregular intervals in the sample stream, usually one or two duplicates per drill hole (approximately every 20-40m). For the RC drilling certified blanks (OREAS 24P) were placed in the sample stream at the rate of 1 in 100, at each hundredth sample. Additionally, two different certified standards were used in the sample stream (OREAS 72A and OREAS 162) at the rate of 2 standards per 100 samples. These were placed at the 25th and 75th number of every hundred samples.</li> <li>The Co values in the blank samples were higher than the provided values however they are below 80 ppm; comparatively low compared to the estimated resource values and therefore within acceptable ranges for blank samples. Overall there were only a small number of outliers in the duplicates collected and therefore the duplicate results are also considered satisfactory.</li> <li>Material being sampled is generally fine grained, and a 2-3kg sample from each metre is considered adequate.</li> </ul> |
| Quality of<br>assay data<br>and laboratory<br>tests     | <ul> <li>The nature, quality and appropriateness of the assaying and laboratory procedures used and whether the technique is considered partial or total.</li> <li>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.</li> <li>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.</li> </ul>  | <ul> <li>Samples were crushed and pulverised, and analysed for Co, Ni, Mn, Zn, Mg, Al &amp; Fe using a four acid digest with an ICP OES finish (method AD02-ICP) by Bureau Veritas' Perth laboratory. These procedures are considered appropriate for the elements and style of mineralisation. Analysis is considered total.</li> <li>No geophysical tools have been used.</li> <li>The internal laboratory QAQC procedures included analysing its own suite of internal standards and blanks within every sample batch and also adding sample duplicates.</li> </ul>  |
| Verification of   | The verification of significant intersections by either independent or alternative company personnel.   | Significant intersections are determined by company personnel and checked internally.   |



| Criteria   | JORC Code explanation  | Commentary   |
|--|--|--|
| sampling and<br>assaying   | <ul> <li>The use of twinned holes.</li> <li>Documentation of primary data, data entry procedures, data verification, data storage (physical and electronic) protocols.</li> <li>Discuss any adjustment to assay data.</li> </ul>   | <ul> <li>A limited number of twinned RC holes and AC holes twinned by Sonic Core (SC) holes have been drilled. 5 of the 6 RC holes and the 3 AC holes are twins previous AC holes. Analysis of paired data representing AC and SC samples with proximity of approximately 5 m or less has given at least preliminary indications that some AC samples are yielding higher Co and Mn values than corresponding samples derived from SC. Population statistics however show the reverse and AC statistics are slightly lower grade on average than RC and SC.</li> <li>Individual sample numbers are generated and matched on site with down hole depths. Sample numbers are then used to match assays when received from the laboratory. Verification of data is managed and checked by company personnel with extensive experience. All data is stored electronically, with industry standard systems and backups.</li> <li>Data is not subject to any adjustments.</li> </ul> |
| Location of<br>data points                                       | <ul> <li>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.</li> <li>Specification of the grid system used.</li> <li>Quality and adequacy of topographic control.</li> </ul>  | <ul> <li>Collar locations were determined by hand held GPS and are accurate to approximately +/- 5m.</li> <li>The grid system used is AGD84; AMG Zone 51 to match a previously established grid. A DTM and 2.5m spaced topographic contours have been prepared from ortho-photomaps and hole RLs are measured from these. This topographic control is considered quite adequate for the current purposes.</li> </ul>   |
| Data spacing<br>and<br>distribution                              | <ul> <li>Data spacing for reporting of Exploration Results.</li> <li>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.</li> <li>Whether sample compositing has been applied.</li> </ul>                                 | All holes were sampled and assayed in 1m intervals<br>and no other compositing has been applied during<br>sample collection and assay laboratory<br>preparation.   |
| Orientation of<br>data in relation<br>to geological<br>structure | <ul> <li>Whether the orientation of sampling achieves unbiased sampling of possible structures and the extent to which this is known, considering the deposit type.</li> <li>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.</li> </ul> | <ul> <li>The mineralisation is mostly contained within a flat lying weathering blanket and vertical holes achieve unbiased sampling in most cases.</li> <li>The mineralisation is mostly contained within a flat lying weathering blanket and vertical holes achieve unbiased sampling in most cases.</li> </ul>   |
| Sample<br>security   | The measures taken to ensure sample security.  | Samples were either taken directly from the drill site<br>to the laboratory in Kalgoorlie or delivered to a<br>dedicated cartage contractor in Norseman by<br>company employees and or contractors.  |
| Audits or reviews  | The results of any audits or reviews of sampling techniques and data.  | No audits or reviews were carried out for this<br>metallurgical drilling as it is not considered<br>warranted at this stage.   |

# SECTION 2 REPORTING OF EXPLORATION RESULTS

(Criteria listed in the preceding section also apply to this section.)

| Criteria   | JORC Code explanation   | Commentary  |  |  |  |
|--|---|---|--|--|--|
| Mineral<br>tenement and<br>land tenure<br>status | Type, reference<br>name/number, location<br>and ownership including<br>agreements or material<br>issues with third parties<br>such as joint ventures,<br>partnerships, overriding | • The exploration results relate to the Mt Thirsty Project, located approximately 16km north west of Norseman, Western Australia. The tenements are owned 50:50 (Mt Thirsty Joint Venture, MTJV) by Conico Ltd (through its subsidiary Meteore Metals Pty Ltd) and Barra Resources Ltd. The project includes Retention Licence R63/4, Exploration Licences E63/1267, and E63/1790 and Prospecting Licence P63/2045. Mining Lease applications have been lodged over R63/4 and E63/1267 and a General Purpose Lease application over |  |  |  |



| Criteria  | JORC Code explanation   | Commentary  | ,  |   |  |  |  |  |
|---|---|---|--|---|--|--|--|--|
| Exploration   | 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.  • Acknowledgment and appraisal of exploration | announce A NSR retenement between Aborigina wildernes the Mt T Western Meteore/known im  The Mt T   | ement are local<br>by alty is payall<br>is lie within the<br>the claimants<br>il heritage sit<br>is sites or nati<br>hirsty Project<br>Woodlands.<br>Barra have se<br>appediments to<br>hirsty area wa | ted on R63<br>ble to a thi<br>Ngadju na<br>and the<br>es and fa<br>onal parks<br>although t<br>ecured tenu<br>obtaining a<br>s explored   | ord party on attive title clatenement in cilitate accessor known eache project at the project at the project of | any prim (WC) nolders ess. The environment is exprojement experience of the experien | oduction<br>099/002),<br>are des<br>nere are<br>mental se<br>located<br>ct area a<br>in the are  | fred to in the from R63/4. The and agreement igned to prote no historical ettings that affect within the Green and there are real. |
| done by other parties   | by other parties.   | others. A<br>limonitic i<br>1990's R<br>oxidised  | though no sign<br>nickel/cobalt m<br>esolute-Sama  | nificant sulp<br>ineralisation<br>tha discov<br>In orthocur   | hide discov<br>n was encou<br>rered high g   | eries w<br>untered<br>Irade c  | ere made<br>I but not fo<br>obalt min  | e during that tim<br>ollowed up. In the<br>eralisation in the<br>mineralisation  |
| Geology   | <ul> <li>Deposit type, geological<br/>setting and style of<br/>mineralisation.</li> </ul>   | weatherir<br>Archaear<br>Ni minera  | ng of ultramafi<br>Norseman - \  | c (peridotit<br>Viluna gree   | e) rocks loc<br>enstone belt   | ated a   | t the sou<br>of the Co   | d as a result<br>thern end of the<br>and some of the<br>n have formed  |
| 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 | up from I<br>November<br>master co<br>domain (u<br>of the most<br>Over the colored<br>lower don<br>composite<br>years in the<br>2016.   | Reverse Circur 2016 (refer Amposite was napper) and half st important eatentire Mineral nain accounts as for the upper mine plan half, three Air Coples for benefit | lation (RC<br>SX Quarte<br>nade up of<br>lower sapr<br>rly years of<br>Resource,<br>for 87% of<br>and lower<br>nave been<br>ore (AC) driction test<br>sites, altho                                     | ) drill samp<br>rly Report for<br>a blend of a<br>olite domain<br>f the mine pl<br>the upper d<br>f the availa<br>domains at<br>blended from<br>the service of the<br>work. These<br>bugh at grad | oles from December De | om six home  | composite macoles collected parter 2016). The collected parter 2016 is representative for 13% and the part of this PF tative of the ear CC samples from the collected part of the collected part of the collected part of the collected part of the oversity of the oversity of the oversity of the collected part of the oversity of the collected part of the oversity of the collected part of the collec |  |
|   | <ul> <li>interception depth</li> <li>hole length.</li> <li>If the exclusion of this information is justified on</li> </ul>  | Hole ID   | Date<br>Drilled  | Easting   | Northing   | RL<br>(m)  | Depth<br>(m)   | Composite<br>Intervals<br>(m)  |
|   | the basis that the  | MTRC036   | 20/11/2016   | 372162  | 6447455  | 378  | 54   | 18-42  |
|   | information is not<br>Material and this   | MTRC037   | 19/11/2016   | 372244  | 6447455  | 376  | 30   | 13-30  |
|   | exclusion does not<br>detract from the  | MTRC038   | 19/11/2016   | 372349  | 6447457  | 369  | 35   | 14-28  |
|   | understanding of the  | MTRC039   | 20/11/2016   | 371956  | 6447000  | 382  | 40   | 14-34  |
|   | report, the Competent<br>Person should clearly  | MTRC040   | 20/11/2016   | 372115  | 6447001  | 393  | 40   | 30-36  |
|   | explain why this is the   | MTRC041   | 20/11/2016   | 372295  | 6446999  | 381  | 35   | 23-32  |
|   | case.   | MTAC798   | 14/08/18   | 372300  | 6447251  | 377  | 30   | 3-5<br>8-10<br>16-26   |
|   |   | MTAC799   | 14/08/18   | 372121  | 6446846  | 392  | 60   | 35-48<br>54-56   |
|   |   | MTAC801   | 14/08/18   | 371754  | 6447056  | 375  | 35   | 23-34  |
|   |   | Table – D<br>AGD84 Zo   |  | in the sar  | mple compo   | sites. A   | All holes  | are vertical. Gr   |
| Data<br>aggregation<br>methods  | In reporting Exploration Results, weighting averaging techniques, maximum and/or minimum grade  | <ul><li>Not appli</li><li>No equiv</li></ul>  | cable.<br>alent values ar  | e used.   |  |  |  |  |



| Criteria  | JORC Code explanation  | Commentary  |
|---|--|---|
|   | 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. |   |
| Relationship<br>between<br>mineralisation<br>widths and<br>intercept<br>lengths | <ul> <li>These relationships are particularly important in the reporting of Exploration Results.</li> <li>If the geometry of the mineralisation with respect to the drill hole angle is known, its nature should be reported.</li> <li>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').</li> </ul>  | As the mineralised envelope is generally flat lying and nearly all holes were drilled vertically; down hole width is mostly considered to be true width.  |
| 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.  | All diagrams contained in this document are generated from spatial data displayed in industry standard mining and GIS packages.   |
| Balanced<br>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.  | Not applicable.   |
| Other<br>substantive<br>exploration<br>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;   | <ul> <li>Five sighter tests were completed on one litre solutions at 70 degrees celsius.<br/>NaHS addition was set at 107-125% of the stoichiometric requirement and<br/>NaOH addition was 0.54-0.80kg/m3. The pH was increased gradually from 3.2<br/>in the first test to 3.8 in the fifth test. Cobalt precipitation increased from 75.7%<br/>to 94.5% and nickel precipitation increased from 91.7% to 99.4% from the first<br/>to the fifth sighter test.</li> </ul> |



| Criteria     | JORC Code explanation   | Commentary   |
|--------------|---|--|
|              | bulk density, groundwater, geotechnical and rock characteristics; potential deleterious or contaminating substances.  | <ul> <li>sulphide precipitation.</li> <li>This is an improvement on previous assumptions for Nickel losses during mixed sulphide precipitation, which will be revised downwards for the previously assumed 2% to the now demonstrated 1%.</li> <li>Cobalt losses during mixed sulphide precipitation will remain as previously assumed at 2%</li> <li>Assumed losses in the Counter Current Decantation (CCD) will remain at 2% for both payable metals. The CCD loss estimate can only be refined with continuous piloting, which will be part of forward work post PFS.</li> <li>The only testwork still underway is Manganese precipitation, both as an oxide for disposal to allow process water recycling and as a carbonate as a potential future by-product.</li> </ul> |
| Further work | <ul> <li>The nature and scale of planned further work (eg tests for lateral extensions or depth extensions or large-scale step-out drilling).</li> <li>Diagrams clearly highlighting the areas of possible extensions, including the main geological interpretations and future drilling areas, provided this information is not commercially sensitive.</li> </ul> | <ul> <li>The Mt Thirsty deposit is presently the subject of a PFS.</li> <li>The PFS is nearing completion</li> </ul>   |