

# Archer March 2014 Quarterly Activities Report



ASX Code: AXE

## Directors

Greg English  
*Chairman*

Gerard Anderson  
*Managing Director*

Tom Phillips AM  
*Director (Non-Executive)*

Alice McCleary  
*Director (Non-Executive)*

## Company Secretary

Craig Gooden

## Shares on Issue

83.6 million

## Unlisted Securities on Issue

3.4 million Performance Rights

## Key focus

Campoona and Sugarloaf  
Graphite Projects (Eyre  
Peninsula, South Australia).  
Second tier projects cover  
magnesite, manganese, copper  
and gold.



Archer Exploration Limited  
ABN 64 123 993 233  
Level 1, 28 Greenhill Road  
Wayville SA 5034

Telephone +61 8 8272 3288  
Facsimile +61 8 8272 3888  
[www.archerexploration.com.au](http://www.archerexploration.com.au)

## HIGHLIGHTS FOR THE MARCH 2014 QUARTER

### CAMPOONA GRAPHITE

- Maiden JORC 2012 Inferred Resource at Central Campoona of 520,000 tonnes grading 11.6% TC (5% TC lower cut-off grade).
- 28 RC drill holes completed at Central Campoona extended drill coverage to 100m depth on a 25m x 50m line spacing.
- 3 geotechnical diamond drill holes completed at Campoona Shaft to provide geotechnical data for detailed pit design.
- 4 x 22.9cm diameter, 30 metre deep auger holes completed along the Campoona Shaft deposit provided approximately 4 tonnes of sample for scale-up and pilot scale test work.
- Bulk flotation tests completed delivering high grade concentrates for marketing.

### BARTELS GOLD

- 2 infill drill holes completed at Bartels epithermal gold project.

### LEIGH CREEK MAGNESITE

- The Complaint lodged against the Mt Hutton portion of the greater Leigh Creek magnesite deposit will be heard in the Wardens Court in Adelaide commencing 23 June 2014.

### RESEARCH AGREEMENT

- 2-year \$200,000 study announced with the University of Adelaide into graphene and graphite derivative materials for agricultural and environmental (bioremediation) products.

### PERSONNEL

- Mr Peter Bartsch joined Archer on a two-year contract to head up the Company's graphite metallurgical testing and plant design.

### FINANCIAL

- Cash in bank on 31<sup>st</sup> March 2014 of \$6.584 million.
- \$840,000 was spent on exploration and project evaluation during the quarter.

# Summary of the March 2014 Quarter Exploration Activities

## 1. CAMPOONA GRAPHITE

Resource modeling of Central Campoona was undertaken by AMC Consultants Pty Ltd, an independent mining and resource consultancy, based on information compiled by Archer Exploration geologists. For all reporting compliance see ASX release 18<sup>th</sup> February 2014. The JORC Code 2012 Inferred Mineral Resources and are set out in Tables 1- 3 below.

**Table 1 Central Campoona Inferred Mineral Resource (>2% Total Carbon Cut-off)**

| OXIDE                                     | Oxidation State           | Tonnage (kt) | Total Carbon (%) | Density    |
|-------------------------------------------|---------------------------|--------------|------------------|------------|
| 0                                         | Oxidised Graphitic Schist | 550          | 11.0             | 2.1        |
| 1                                         | Graphitic Claystone       | 20           | 8.1              | 1.9        |
| <b>Total Inferred &gt;2% Total Carbon</b> |                           | <b>570</b>   | <b>10.9</b>      | <b>2.1</b> |

**Table 2 Central Campoona Inferred Mineral Resource (>5% Total Carbon Cut-off)**

| OXIDE                                     | Oxidation State           | Tonnage (kt) | Total Carbon(%) | Density    |
|-------------------------------------------|---------------------------|--------------|-----------------|------------|
| 0                                         | Oxidised Graphitic Schist | 504          | 11.6            | 2.1        |
| 1                                         | Graphitic Claystone       | 16           | 9.0             | 1.9        |
| <b>Total Inferred &gt;5% Total Carbon</b> |                           | <b>520</b>   | <b>11.6</b>     | <b>2.1</b> |

**Table 3 Central Campoona Inferred Mineral Resource (>10% Total Carbon Cut-off)**

| OXIDE                                      | Oxidation State           | Tonnage (kt) | Total Carbon(%) | Density    |
|--------------------------------------------|---------------------------|--------------|-----------------|------------|
| 0                                          | Oxidised Graphitic Schist | 321          | 14.0            | 2.1        |
| 1                                          | Graphitic Claystone       | 5            | 12.6            | 1.9        |
| <b>Total Inferred &gt;10% Total Carbon</b> |                           | <b>326</b>   | <b>14.0</b>     | <b>2.1</b> |



Both the Campoona Central and Campoona Shaft will be re-estimated to accommodate data collected during drilling in the March quarter. A new statement for each resource will be released upon reporting of these estimations.

## **2014 Graphite Drilling**

### **Campoona Shaft**

A total of three diamond geotechnical holes were drilled (297m) to provide rock quality data to support detailed pit design. All holes were drilled as HQ triple tube (HQ3).

Additionally, four 22.9 cm diameter auger holes (each 30m deep) were drilled to recover a bulk representative sample for further up-scale and pilot scale testwork. Plate 1 (below) shows the locations of these holes. The 4.5 tonnes of sample is representative of the graphite ore planned to be mined in the first five years of the project.



**Plate 1. Location of Auger and diamond holes drilled at Campoona Shaft in 2014 (lines denote hole directions).**

Plate 2, 3 & 4 are photos of 2 of the geotechnical holes and one auger hole, their locations are shown in Plate 1.



**Plate 2. Drilling CSGT14\_001 graphite at surface**



**Plate 3. Diamond rig on hole CSGT14\_003**



**Plate 4. RC rig set up on AUG\_04**

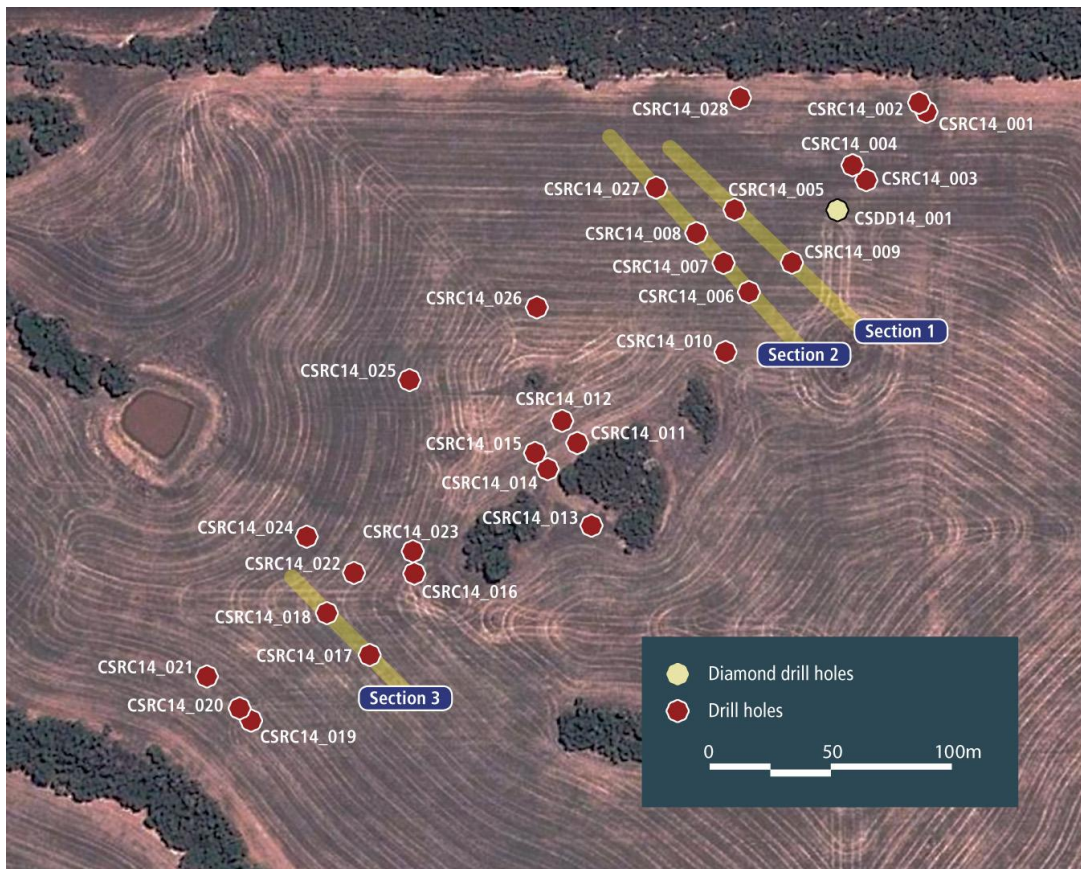
### **Central Campoona**

A total of 28 Reverse Circulation (RC) holes (1,447m) were drilled in early 2014 as a part of the recommendations from the maiden JORC 2012 Central Campoona Resource Estimate. The purpose of the holes was to provide additional geological and assay data to improve the estimation confidence and possibly allow for a higher resource classification once it is completed. Central Campoona now has a nominal drill coverage of 25m x 50m line spacing and drill coverage up to 100m below surface.

The drill results were included in an ASX Release issued on 24 April 2014.

One diamond hole (60m) was also completed during the program at Campoona Central for the purpose of collecting samples for metallurgical testwork.

Plate 5 (below) shows the locations of the holes drilled at Central Campoona this quarter.



**Plate 5. Location of RC and diamond hole drilled at Central Campoona in 2014.**

The diamond hole (CSDD14\_001) recovered graphitic material that can be used in future metallurgical studies. Plate 6 (below) shows the nature of the core being recovered from near surface (4.1m down hole).

Similar to metallurgical holes drilled in 2012 at Campoona Shaft, hole CSDD14\_001 was drilled at a high angle to the deposit to maximize the total sample both vertically and across the strike.

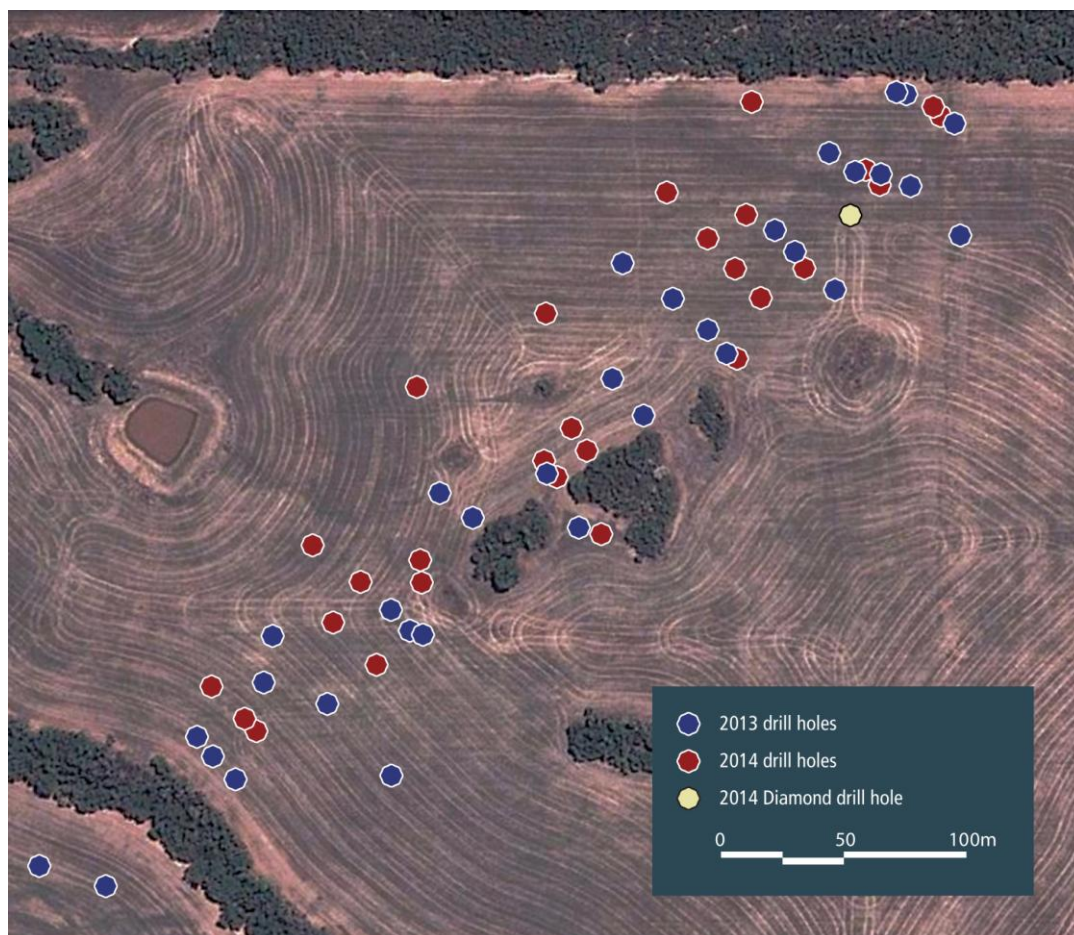


Plate 6. CSDD14\_001 4.1m down hole graphite ore



Plate 7. RC chips from CSRC14\_009 after logging (note graphite from surface).

Plate 8 (below) shows the current drilling density over Campoona Central, with both the recent holes (2014) presented with the previously drilled and reported holes (2013).



**Plate 8. Plan view of all holes drilled at Campoona Central (2013 to 2014)**

## **2. GOLD DRILLING AT BARTELS ON WILDHORSE PLAINS**

During the quarter 2 holes RC holes were drilled at Bartels Epithermal gold prospect to identify near surface gold mineralization from drilling in 2012. Heavily altered dolomitic rocks with strong chlorite alteration were intersected. Assays and results from these drill holes will be released once they are received and interpreted.

Regional mapping was also conducted to take advantage of the post-harvest period.



### **3. LEIGH CREEK MAGNESITE**

A Complaint was lodged in the Wardens Court on 5 December 2013 by Magnesium Developments Pty Ltd over the Mt Hutton portion of the greater Archer's Leigh Creek magnesite deposits. Two directions hearings have been completed with the final hearing set for the week commencing 23 June 2014.

Archer's wholly owned subsidiary, Leigh Creek Magnesite Pty Ltd, will rigorously defend its rights as the legal holder of mineral tenure over the area.

### **4. RESEARCH & DEVELOPMENT**

#### **Adelaide University Research Collaboration**

Archer has teamed up with the University's School of Chemical Engineering for a two-year \$200,000 research program.

The research will focus on the best commercial uses for the specific graphite and graphene products originating from Archer's wholly-owned, high grade Campoona and Sugarloaf graphite deposits, on Eyre Peninsula, South Australia. In particular, the program will focus on new product opportunities especially in the agricultural and environmental arenas.

The new research agreement follows an initial collaboration between the Company and the University last year when tests by the University's School of Chemical Engineering demonstrated that Campoona's mineralogy was readily amenable to the production of graphene and graphite products.

The raft of such potential products included graphene nanosheets, powders, films, membranes, electrodes and nanocarriers as well as a range of conductive and magnetic gels.

Those results were sufficient for Archer to further probe the probability of delivering two long-term production and revenue earnings streams from Campoona and nearby Sugarloaf, based around high grade to ultra-pure fine natural graphite, and, high tech high value graphene and graphite related products.

### **5. MINE LEASE PROPOSAL**

Applications have been made and approval given to drill two water bores for the purpose of investigating the aquifer potential from a property near to Sugarloaf. An additional application has been made to remove water from these bores for the purpose of determining its suitability for processing graphite ore.

Studies required to support the upcoming Mining Lease Application and PEPR progressed throughout the Quarter. As at 31 March the MLP was approximately 65% completed.

**Table 1. MLP Progress**

| Task                                               | Work undertaken to date                                                                               | Work in progress                                                                |
|----------------------------------------------------|-------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------|
| <b>Ecology</b>                                     | ✓ Spring & Winter baseline surveys                                                                    | ▪ Impact assessment in progress                                                 |
| <b>Air quality</b>                                 | ✓ Project reviewed & GAP analysis                                                                     | ▪ Modelling in progress                                                         |
| <b>Hydrogeology</b>                                | ✓ <b>Desktop study completed</b>                                                                      | ▪ <b>Completed</b>                                                              |
| <b>Geochemistry</b>                                | ✓ Draft report completed                                                                              | ▪ Sampling and Analysis Plan.<br>▪ Conceptual AMD management plan has commenced |
| <b>Socio-Economic &amp; Community Consultation</b> | ✓ Stakeholder engagement plan<br>✓ Focus group<br>✓ 2-Monthly CCC meetings<br>✓ Community newsletters | ▪ Two-monthly newsletters<br>▪ Community open days planned                      |
| <b>Surface Water</b>                               | ✓ Desktop study                                                                                       | ▪ Finalising document                                                           |
| <b>Visual Amenity</b>                              | ✓ Fieldwork completed                                                                                 | ▪ Preparation of photos and text for the MLP                                    |
| <b>Tailings Management</b>                         | ✓ Tailings workshop<br>✓ Tailings Option Assessment                                                   | ▪ Tailings Option Assessment                                                    |
| <b>Mine Closure Plan</b>                           | ✓ Information review & gap analysis started                                                           | ▪ Awaiting final mine plan                                                      |
| <b>MLP &amp; PEPR</b>                              | ✓ Kick-off meeting<br>✓ Table of Contents                                                             | ▪ Awaiting studies to progress further.<br>▪ Awaiting final mine plan           |
| <b>Regulator Liaison</b>                           | ✓ Meetings with government stakeholders undertaken                                                    | ▪ Regular meetings                                                              |
| <b>Permitting Review</b>                           | ✓ <b>Draft Permit Register completed in February 2014</b>                                             | ▪ <b>Completed</b>                                                              |
| <b>Cultural Heritage</b>                           | ✓ <b>Desktop cultural heritage study completed in December 2013</b>                                   | ▪ <b>Completed</b>                                                              |
| <b>Noise</b>                                       | ✓ Review of various project documents and gap analysis                                                | ▪ Desktop modelling and reporting in progress                                   |
| <b>Traffic</b>                                     | ✓ Desktop traffic study completed                                                                     | ▪ Finalise desktop assessment                                                   |

The studies are on track which should result in the submission of the MLP in late Quarter 3 /early Quarter 4 calendar 2014.

## 6. FINANCIAL

The Company's cash balance at the end of the quarter was \$6.584 million.

\$840,000 was spent during the quarter on exploration and development activities.



## 7. TENEMENTS

Three tenements were reduced by 25% in size during the Quarter in line with DMITRE directives.

- EL 4266 North Burra
- EL 4869 Ediacara
- EL4249 Spring Creek

EL 5383 Mt Messenger was granted during the Quarter. Mt Messenger adjoins EL 4693 (Wildhorse Plains) to the North. It was applied for to explore for possible graphite to the east of the Campoona mineralization. Historic drill holes indicate that graphite was encountered during drilling however it is unknown what the implications are for this until they are identified and sampled.

## 8. ACTIVITIES FOR JUNE QUARTER 2014

Marketing of Campoona Shaft graphite concentrates will commence. Up-scale testing will continue to refine the treatment process flowsheet. Preparations for pilot scale testing will be undertaken with pilot scale testing expected to commence in Q3 calendar 2014.

Geotechnical studies of recent drilling will be completed by AMC Consultants and be used to complete the detailed mine design for Campoona Shaft.

Both the Campoona Shaft and Central Camppona will have resource estimates completed to JORC 2012 standard.

The results from the gold drilling and field mapping will be reported once they are interpreted.

Testing of the Pindari groundwater resource will be undertaken including investigating its suitability for processing of graphite ore.

Community consultation will continue right up to the point of submission of the Mining Lease Application and PEPR. The Community Consultative Committee ("CCC") meets every 2 months and Community Newsletters are distributed prior to each CCC meeting.

Critical studies to support the Mining Lease Application will continue throughout the June 2014 quarter.

For further information please contact:

Mr Greg English  
Chairman  
Archer Exploration Limited  
Tel: (08) 8205 3343

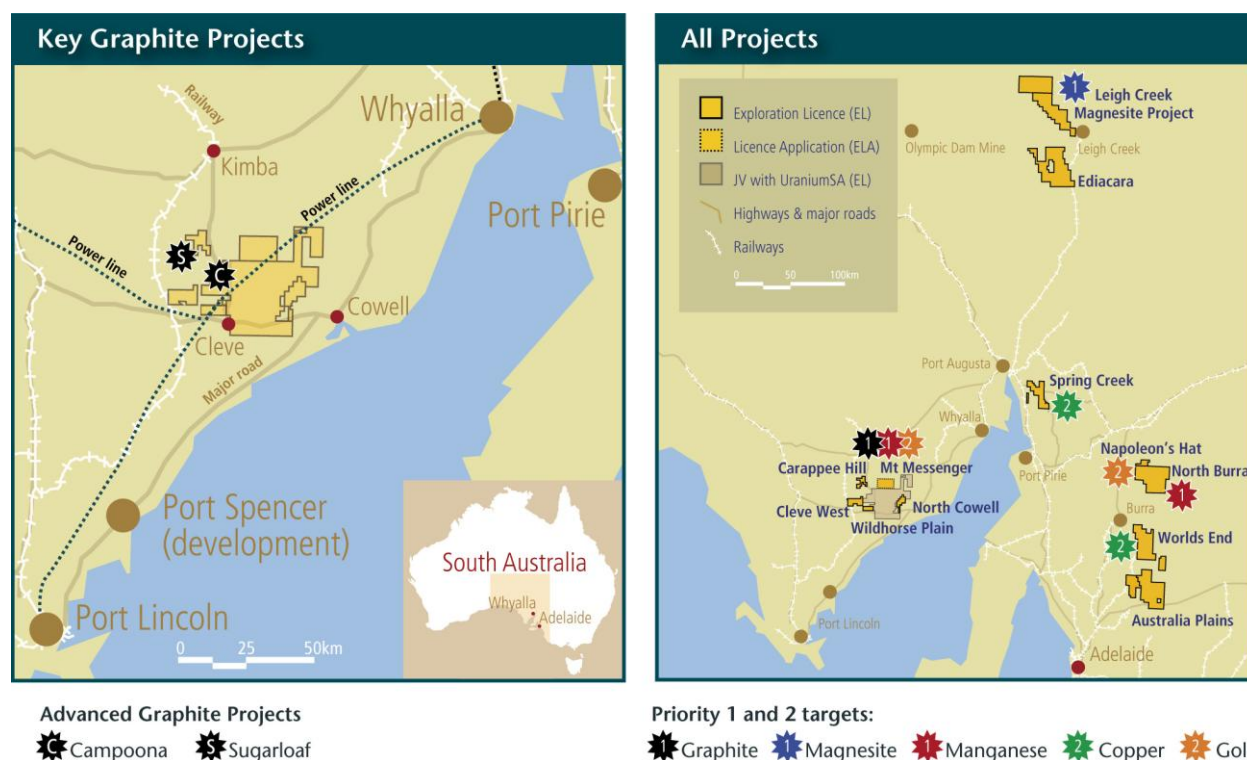
Mr Gerard Anderson  
Managing Director  
Archer Exploration Limited  
Tel: (08) 8272 3288

## About Archer

Archer Exploration Limited is an Australian Stock Exchange listed company with 100% ownership of 13 tenements all in South Australia covering 4,954 km<sup>2</sup>. Archer also has the rights to all minerals other than uranium on EL4693 covering a further 816 km<sup>2</sup>. Archer's flagship project is the Campoona Graphite Project which is located within reach of established and major developing infrastructure. It has a JORC 2004\* Resource of 2.53 million tonnes @ 12.3 % C (based on 5% cut-off). Archer plans to submit a Mining Lease Proposal to the South Australian Government for approval in the third quarter of calendar 2014.

\* This information was prepared and first disclosed under the JORC Code 2004 (Archer Exploration Limited, ASX Announcement 6th December 2012). It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.

**What sets Campoona apart from almost all other graphite deposits in the world is its ability to deliver ultra-pure, high-value, highly crystalline ultra-fine graphite using conventional mechanical cell flotation.**



Archer Exploration Limited  
 ABN 64 123 993 233  
 Level 1, 28 Greenhill Road  
 Wayville SA 5034

Telephone +61 8 8272 3288  
 Facsimile +61 8 8272 3888  
 www.archerexploration.com.au

The exploration results reported herein, insofar as they relate to mineralisation, are based on information compiled by Mr. Wade Bollenhagen, Exploration Manager of Archer Exploration Limited. Mr. Bollenhagen is a Member of the Australasian Institute of Mining and Metallurgy who has more than eighteen years experience in the field of activity being reported. Mr. Bollenhagen has sufficient experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity that 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" relating to the reporting of Exploration Results. Mr. Bollenhagen consents to the inclusion in the report of matters based on his information in the form and context in which it appears.

The information in this report that relates to the JORC 2004 Mineral Resource estimation has been prepared by Mr B Godsmark who is a Member of the AusIMM and peer reviewed by Mr G Reed who is also a Member of the AusIMM (CP). Mr Godsmark is a full time employee of Mining Plus Pty Ltd and Mr Reed is a sub-contractor to Mining Plus Pty Ltd., both have more than five years' experience which is relevant to the style of mineralisation and type of deposit under consideration and to the activity which they are undertaking to qualify as Competent Persons as defined in the 2004 Edition of the "Australasian Code for Reporting of Exploration Results, Mineral Resources and Ore Reserves". Mr Godsmark and Mr Reed have consented in writing to the inclusion in this announcement of the Mineral Resource estimation information in the form and context in which it appears. This information was prepared and first disclosed under the JORC Code 2004. It has not been updated since to comply with the JORC Code 2012 on the basis that the information has not materially changed since it was last reported.