

# First Quarter Activities Report

For the three months ending 30 September 2017

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## All major projects progressing

- Grant of Eyre Peninsula Graphite Project Mining Tenements expected in coming weeks.
  - Completion of additional Leigh Creek Magnesite test work.
  - Copper footprint at Blue Hills significantly expanded through discovery and tenement acquisition.
  - Significant cobalt and copper discovered at North Broken Hill.
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Commenting on the fourth quarter activities Greg English, Executive Chairman of Archer Exploration, said, "Archer has been pleased with the progress made during the Quarter in the development of the Company's graphite and graphene business. The grant of the Eyre Peninsula Graphite Project Mining Tenements is imminent and the graphene commercialisation work is ongoing."

The past 12 months has seen many technology and advanced material companies and projects established in South Australia. These projects and companies are potential local customers for Archer's developing graphite and graphene businesses."

Mr English said "Discussions with potential customers are ongoing and Archer is confident that recent changes in ownership of one potential magnesia customer will accelerate current negotiations. Also, during the Quarter the Company identified another potential market for the magnesite and has supplied magnesia products to this customer for testing."

"Blue Hills just keeps growing and is exceeding expectations. During the Quarter, we identified a large regional 25km<sup>2</sup> circular magnetic anomaly, with the recent drill collars located on the southern edge of the anomaly. Follow up regional soil sampling has identified three separate large copper anomalies, each greater than 1.0km in length. Whilst our first drill program successfully intercepted copper from surface, the latest soil results suggests that we did not drill the best targets at Blue Hills" said Mr English

"Early reconnaissance rock chip sampling at North Broken Hill has been a great success and has led to the discovery of large cobalt and copper anomalies. Cobalt mineralisation located within Himalaya Suite rocks, same as Cobalt Blue's Thackaringa project were discovered."

"At Broken Hill, in addition to cobalt, we also identified significant zones of copper and copper/gold mineralisation associated within a different rock formation, the Sisters Style."

"Archer successfully progressed each of its four major projects during the Quarter, with further success expected in the coming months" Mr English concluded.

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## Quarterly Activities to 30 September 2017

Archer Exploration Limited (ASX: AXE) (**Archer** or **Company**) is pleased to report on its activities for the three-month period ending 30 September 2017 (**Quarter**).

### Eyre Peninsula Graphite Project

Archer is anticipating the grant of the mining lease for the proposed Campoona Shaft Graphite Mine and the two miscellaneous purpose licences for the Sugarloaf Graphite Processing Facility (together the Mining Tenements) sometime in the coming weeks. All documents have been provided by Archer and the Company is awaiting receipt of the Mining Tenement terms and conditions from the South Australian Government.

The Company's Eyre Peninsula Graphite Project (EPGP) will be Australia's first vertically integrated graphite and graphene manufacturing facility. Ultra-pure graphite from the EPGP will be used to make ultra-pure graphene. Campoona has the ability to supply up to 10,000 t per annum of high grade graphite which is orders of magnitude more than is required to establish a viable graphene business.

The Campoona graphite will be high quality and ultra-pure and will be sold to overseas markets as well as provide a cheap high quality feedstock for Archer's graphene manufacturing facility.



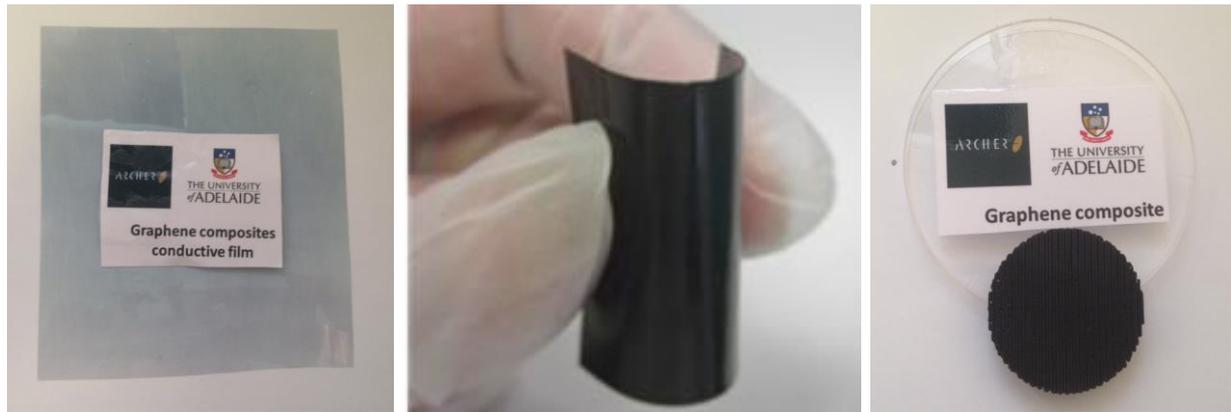
Figure 1: *Eyre Peninsula Graphite Project mining lease and miscellaneous purpose licence application documents.*

At the start of the Quarter, Archer entered into an agreement with the Australian Research Council Research Hub for Graphene Enabled Industry Transformation (ARC Graphene Research Hub) for the development of scalable graphene production processes for the Company's numerous graphite deposits.

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The ARC Graphene Research Hub is led by The University of Adelaide, with The University of Melbourne, Monash University and the University of South Australia participating as collaborating organisations. Archer is also acting in collaboration with national and international companies, active in the mining and minerals, steel manufacturing, defence, and nanotechnology industries.

Previous research by the University of Adelaide showed that Archer graphene demonstrates excellent electrical conductivity properties and that Archer graphite generates a high yield when converted to graphene. Also, CSIRO research showed that Archer graphite is suitable for use in lithium ion batteries.



*Figure 2: Selected graphene products produced from Archer graphite (graphene conductive film, conductive flexible polymer, graphene composite and electrodes for battery and supercapacitor applications)*

## Leigh Creek Magnesia Project

Archer's Leigh Creek Magnesia Projects hosts the world's largest cryptocrystalline magnesite deposits which comprises

Discussions with potential offtake partners and toll processors continued during the Quarter. As previously reported, a potential customer has been successfully using Archer caustic calcined magnesia (CCM) and dead burn magnesia (DBM) products in their steel making process.

During the Quarter the Company identified another potential customer and has provided a sample to that customer for use in a manufacturing process. The results from the trial will be known in the coming weeks.

No further magnesite exploration or metallurgical test work is planned for the next quarter.

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## Blue Hills Copper Prospect

The Blue Hills Copper Prospect is a large copper anomaly covering an area of 25km<sup>2</sup>, located approximately 40km north of Burra, SA. A significant amount of work was undertaken at Blue Hills during the Quarter, including:

- Re-processing of regional and local magnetic data led to identification of large 25km<sup>2</sup> area of interest at Blue Hills.
- Identification of gold in previous drilling.
- Extensive soil sampling program to test the extent of the copper mineralisation.
- Increasing the tenement area held by Archer at Blue Hills to 1,345km<sup>2</sup> to capture all possible extensions to Blue Hills.

### Re-processing of magnetic data

The purpose of the re-processing of the magnetic data led to the identification of a large ovoid area of low magnetic rocks, indicating thermal destruction of magnetism typically associated with volcanic intrusions (Figure 3). The co-location of the magnetic anomaly with the strong copper-gold geochemistry intercepted by shallow drilling and recent rock chip sampling at Blue Hills, together confirm a sizeable potential intrusive related copper-gold target. The interpreted dimensions of the magnetic anomaly are significant, covering an area of approximately 25km<sup>2</sup>.

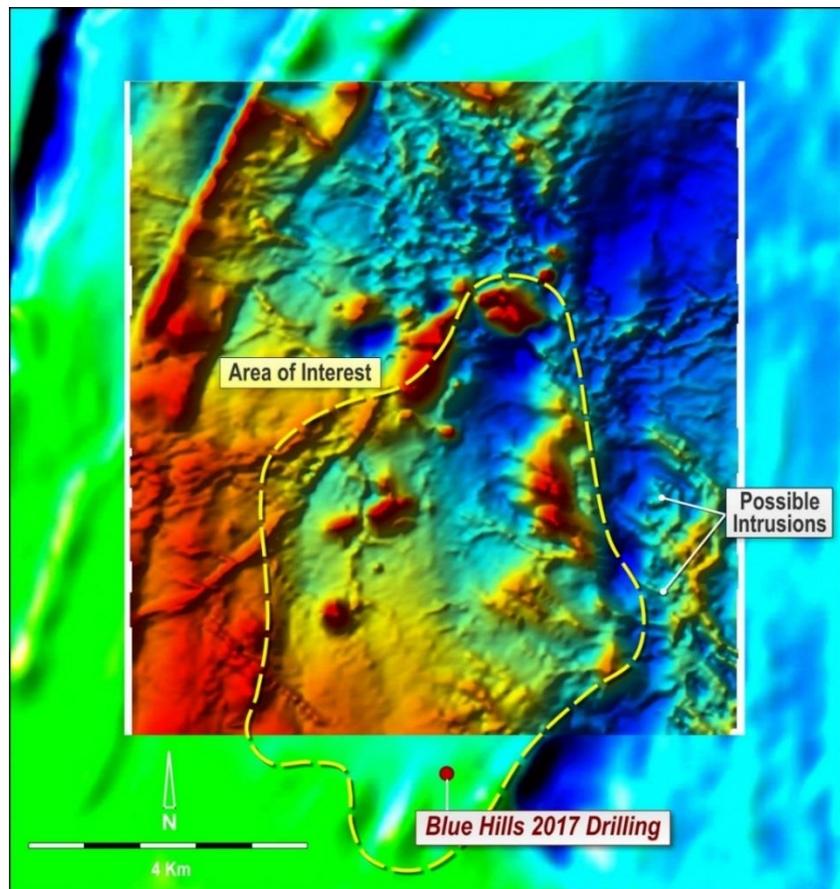


Figure 3: Reprocessed regional and local magnetic data - demagnetisation is clearly evident.

## Discovery of anomalous gold

Gold has never previously been discovered in the Blue Hills area. However, a regional rock chip sampling program undertaken during the last quarter identified the presence of gold in the area (best result of 8.1 g/t). As a result of the discovery of gold in rock chips near Blue Hills, the Company re-assayed the July RC drill samples for gold. Many of the copper mineralised drill intervals were found to have gold present with many of the intervals reporting above 0.1g/t gold. The best results include:

- 1m @ 0.76g/t gold (BHRC 1710)
- 10m @ 0.15g/t gold (BHRC1711)
- 6m @ 0.12g/t gold (BHRC1716)
- 5m @ 0.24 g/t gold (BHRC1710)

Whilst the gold itself is not high grade, the presence of gold in the mineralised copper system is significant, as it supports the geophysical modelling and the Company's view that Blue Hills is an intrusive style copper mineralised system.

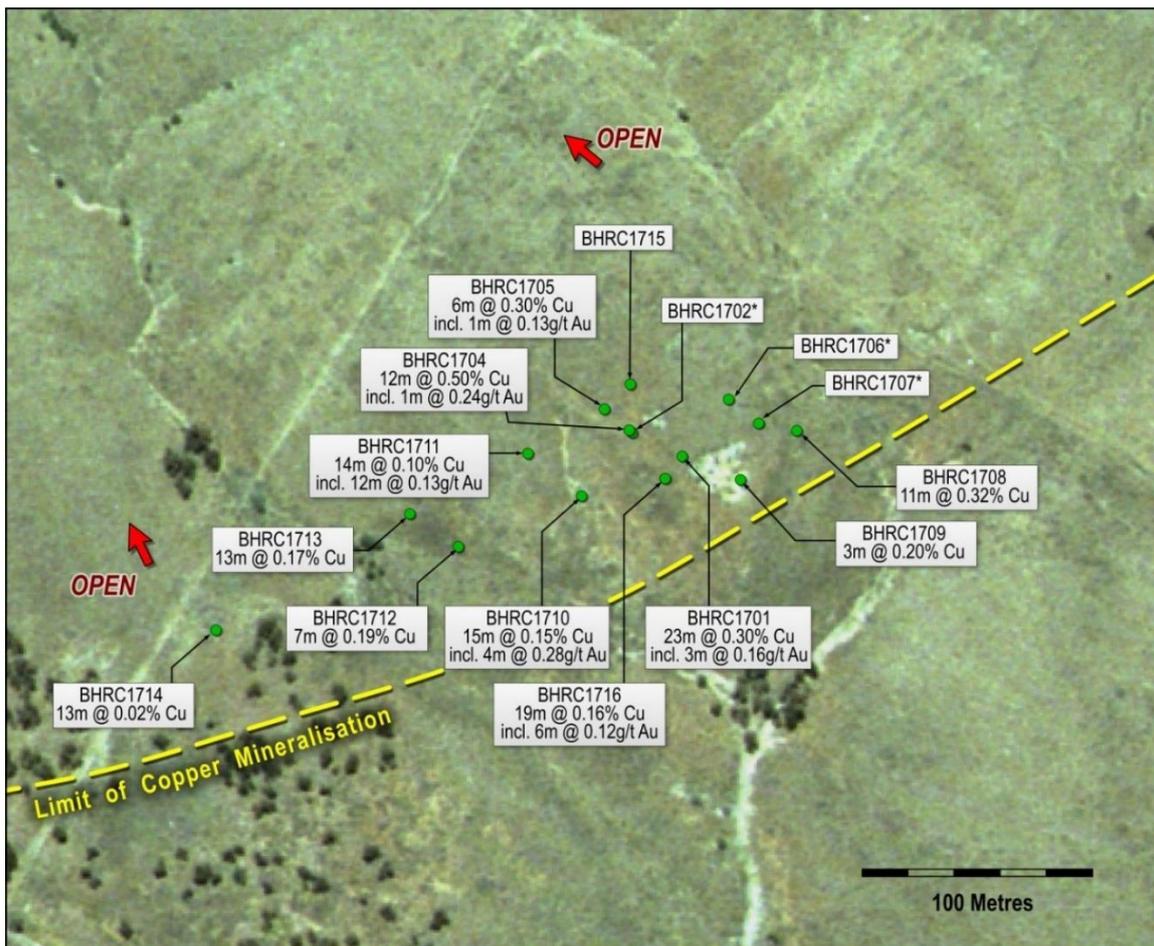


Figure 4: Location of significant gold intervals being reported.

## Soil survey

The outstanding results from the magnetic imaging, drilling and localised rock chip sampling gave Archer the confidence to commit to a larger regional soils program over an initial area of 25km<sup>2</sup>. During the Quarter, the Company completed a 3,295 sample soil survey over about 60% of the larger Blue hills anomaly, with samples collected on 100m x 100m grid. Each sample was analysed using a hand held XRF device, Copper, Arsenic, Lead and Zinc appeared to be consistently the best reported elements. The objective of this orientation survey was to determine the level of copper mineralisation associated with the interpreted large magnetic intrusive body and to identify future drill targets.

The soil sampling identified three separate large copper anomalies (Figure 5) along the interpreted edges of the large intrusive body. The anomalies are defined as:

- Hood anomaly, located on the southern edge of the magnetic intrusion, is approximately 4km long and 2km wide (at +90ppm copper).
- Hawkeye anomaly, located on the south-eastern edge of the magnetic intrusion, is approximately 1.5km long and 1.0km wide (at +90ppm copper).
- Katniss anomaly, trending in a north-west direction, is approximately 1km long and 0.5km wide (at +90ppm copper).

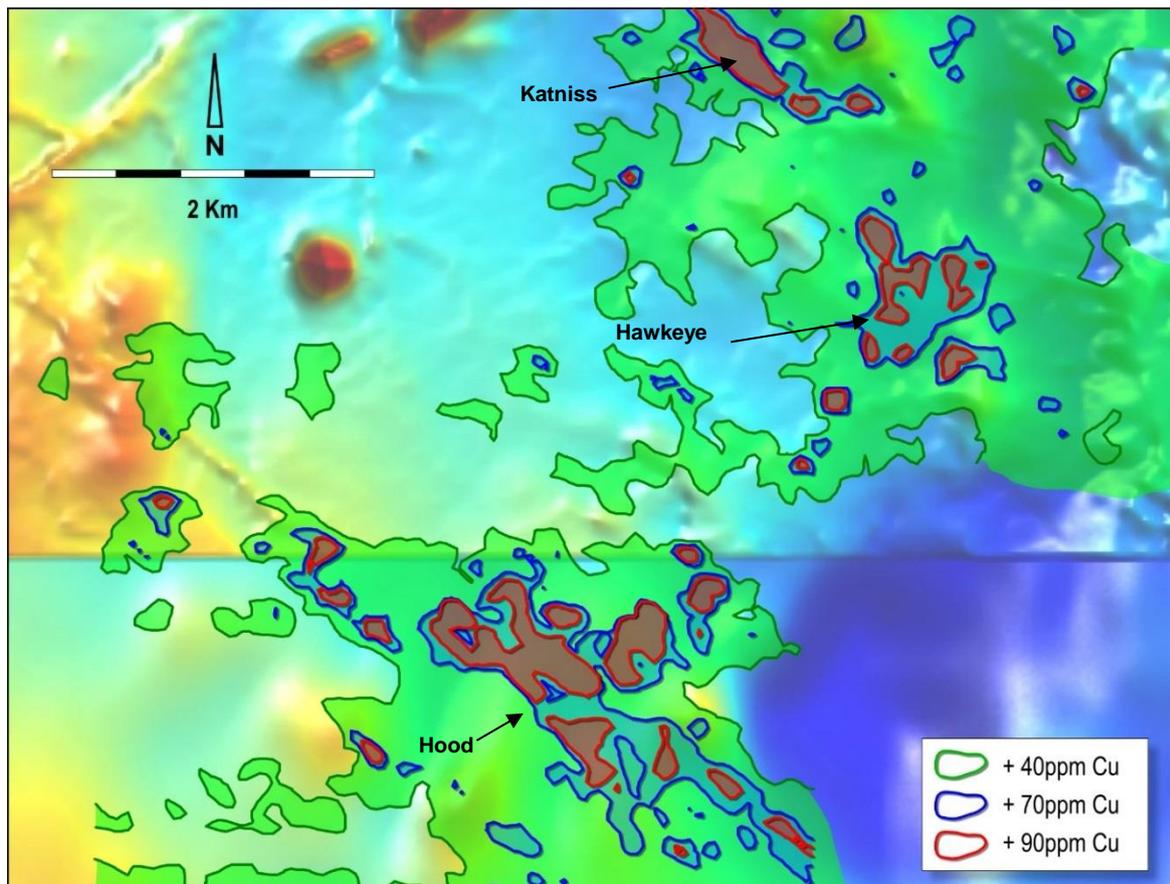


Figure 5: Blue Hills copper mineralisation contours overlain on magnetic image.

Hood was the location of Archer's original exploration efforts at Blue Hills. A rock chip sampling program recently completed by Archer identified samples of up to 9.27% copper and 8.1g/t gold. RC drilling by Archer at Hood defined a shallow copper zone at Hood, on the periphery of the magnetic anomaly. Numerous copper drill intersections were recorded by Archer from the shallow RC drilling, with drill intercepts of **23m @ 0.30%** and **12m @ 0.5%** copper from surface.

The Hood RC drill holes were not located within the highest-grade soil anomalies with significant +90ppm copper soil anomalies located in the vicinity of the RC drill hole collars. The latest soil sampling results suggest that the best targets have not been drilled at Hood.

Both Hawkeye and Katniss anomalies are new discoveries for Archer. Like Hood, the Hawkeye anomaly is also located on the edge of the Blue Hills magnetic anomaly. The Katniss anomaly is unique in that it is not located on the edge of the magnetic anomaly. Katniss strikes parallel to Hood and is open to the north.

### New tenement and application

Tenement EL 6000 (Pine Creek, area of 235km<sup>2</sup>) was granted during the Quarter and the Company also applied for an additional northern tenement ELA 125/2017 (Altimeter, area of 947km<sup>2</sup>). The acquisition of these two areas means that all of the area of the Blue Hills magnetic anomaly and the known mineralisation is now either 100% held, or under application, by Archer. The granting of Pine Creek allowed Archer to commence the regional soils sampling and testing program.

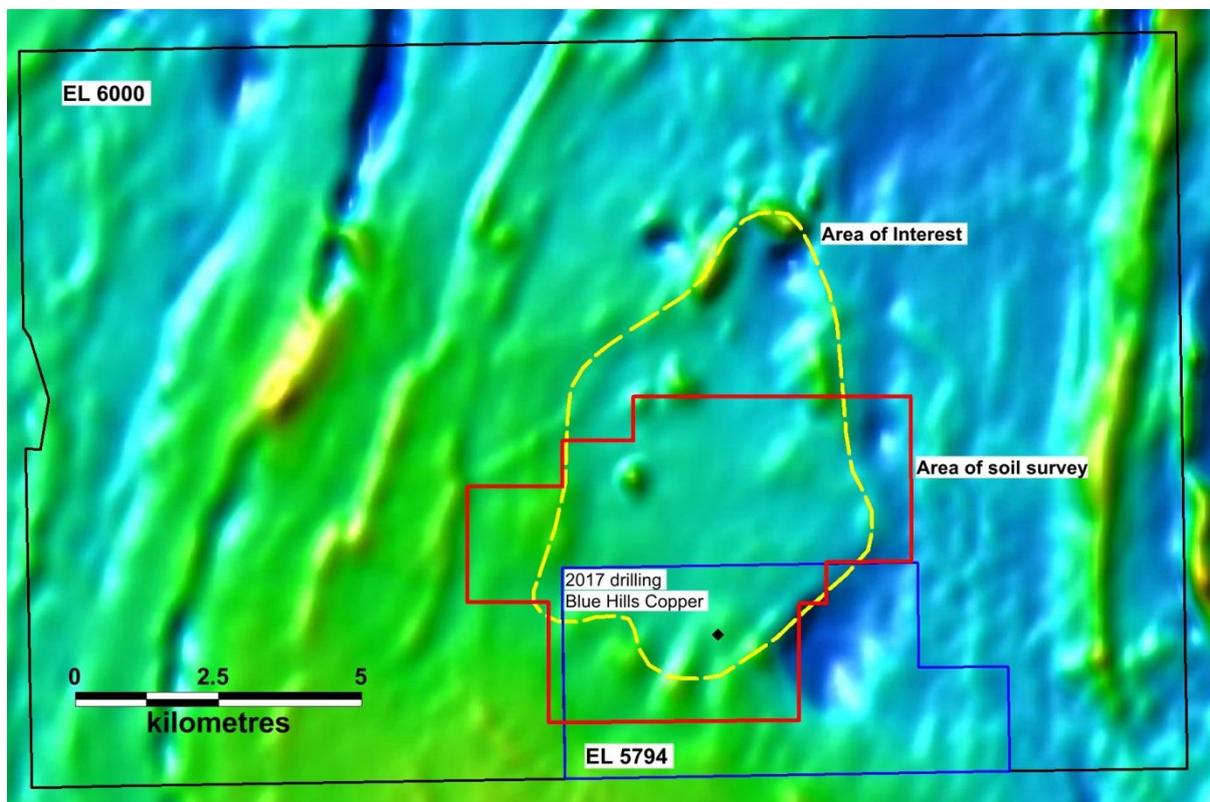


Figure 6: EL 6000 (Pine Creek) showing the exploration Area of Interest for Copper identified from drilling in 2017 at Blue Hills

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## **Ketchowla Cobalt Manganese Project**

The Ketchowla Cobalt Manganese Project is located approximately 45km north of Burra, SA. Ketchowla is an outcropping fold structure that has been mapped over 20km and comprises the K1 to K9 prospects. Drilling by Archer during the last quarter at K1 intersected near surface copper, cobalt and manganese mineralisation. The drilling at K1 was reconnaissance with nature with broad spaced shallow drilling, to a maximum depth of 20 metres, over a strike length of approximately 250 metres. The 250 metre of strike length represents < 20% of K1 structure and < 1% of the larger Ketchowla structure.

During the Quarter metallurgical test work was commenced on a sample of Ketchowla mineralisation to determine the recoverability of each of the minerals and to start the design of the process flow sheet. This metallurgical test work is ongoing and the results will be reported as and when they become available.

Archer has identified multiple drill targets over more than 20km of the greater Ketchowla structure and will undertake further work to prioritise these drill targets.

## **North Broken Hill Cobalt Project**

The North Broken Hill Project (Figure 7) is located approximately 20km north of Broken Hill and is situated along strike from Cobalt Blue Ltd's (ASX:COB) Thackaringa Cobalt Project which includes the Pyrite Hill, Big Hill and Railway cobalt deposits where COB recently announced (ASX 05/06/17) a Mineral Resource of 54.9Mt @ 910ppm Co.

Archer commenced its maiden regional rock chip sampling program in July, immediately after grant of the North Broken Hill tenements. During the Quarter the Company has been systematically collecting rock chip samples from previously unsampled areas that are considered prospective for cobalt and copper mineralisation. This initial exploration work has been targeting those areas that have been identified by NSW government mapping as hosting rock types that are prospective for cobalt mineralisation (e.g. Big Hill, Sisters and Great Eastern type).

To date approximately 80% of the Project area has been sampled. The remaining sites will be visited during the next Quarter to further to assess their cobalt prospectivity and locations with cobalt potential will then be ranked and re-visited.

The regional exploration program has been primarily focussed on the discovery of different styles of cobalt mineralisation, namely Himalaya Style (same as Cobalt Blue's Thackaringa Project) and the newly discovered Sisters Style. The program has been successful in identifying significant cobalt mineralisation and this work will continue over the coming works.

Whilst undertaking the cobalt focussed exploration work, the Company's geologists have also identified significant surface copper mineralisation, most of which has never been mapped or recorded. In almost all instances, the copper mineralised outcrop disappears under cover meaning that the overall dimensions of the mineralisation remain unknown.

The copper mineralisation occurs within different formations, in some instances it appears to be hosted within shears, whilst in other areas locations it is associated with quartz veining. Significantly, due to the historical focus on "Broken Hill Style" (Pb-Zn-Ag) mineralisation little attention has been paid to the copper mineralisation, which in some parts is considerable.

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The reconnaissance sampling program conducted during the Quarter identified four discrete cobalt prospects and three copper prospects within the larger Project, these prospects are:

Prospect	Commodity	Description
Yancowinna	Cobalt	Mapped strike length of 1.5km and peak grade of 0.13% cobalt.
Himalaya	Cobalt	Mapped strike length of 3km and peak grade of 0.16% cobalt.
Golden King West	Cobalt	Mapped strike length of 300m and peak grade of 0.15% cobalt.
Purnamoota	Cobalt	Mapped strike length of 1km and peak grade of 0.14% cobalt (Figure 10).
Secret South West	Copper	+5km long with a peak grade of 6.4% copper (Figure 10).
Yancowinna	Copper	mapped over an area of 4km <sup>2</sup> with a peak grade of 15.5% copper (Figure 8).
Purnamoota	Copper	+4km long with a peak grade of 3.5% copper (Figure 10).

### Yancowinna Cobalt Prospect

The Yancowinna Prospect is situated in the southern portion of EL 8594 (Figure 9), with a peak value of 0.3% (3,000ppm) cobalt recorded. A single sample approximately 3km northwest of Yancowinna and thought to be associated with Great Eastern Style mineralisation, returned a highly anomalous cobalt rock chip value of 0.16% cobalt and 0.65% Copper (Yancowinna West). These results are promising and the Company will revisit this site in the coming weeks.

Archer initially mapped Yancowinna over a distance of 500 meters however, follow sampling significantly extended the Yancowinna strike length from 500 metres to 2.5km in length with the overall area of mineralisation extended to 9km<sup>2</sup>. The Yancowinna Prospect is now described as largely covering EL 8594 (Figure 9) with cobalt values above 0.05% cobalt (500ppm) regularly reported within the larger zone of mineralisation.

### Himalaya Cobalt Prospect

The Himalaya trend of cobalt rock chip anomalies represents a significant strike extent of prospective stratigraphy. The cobalt anomalism at Himalaya extends for over 3.8km (Figure 10), with anomalies occurring in areas of northeast-southwest trending sub-cropping stratigraphy.

The maiden sampling program has confirmed historical mines and non-cobaltiferous mineralisation known on this trend and identified a further 4 to 5 new cobalt targets.

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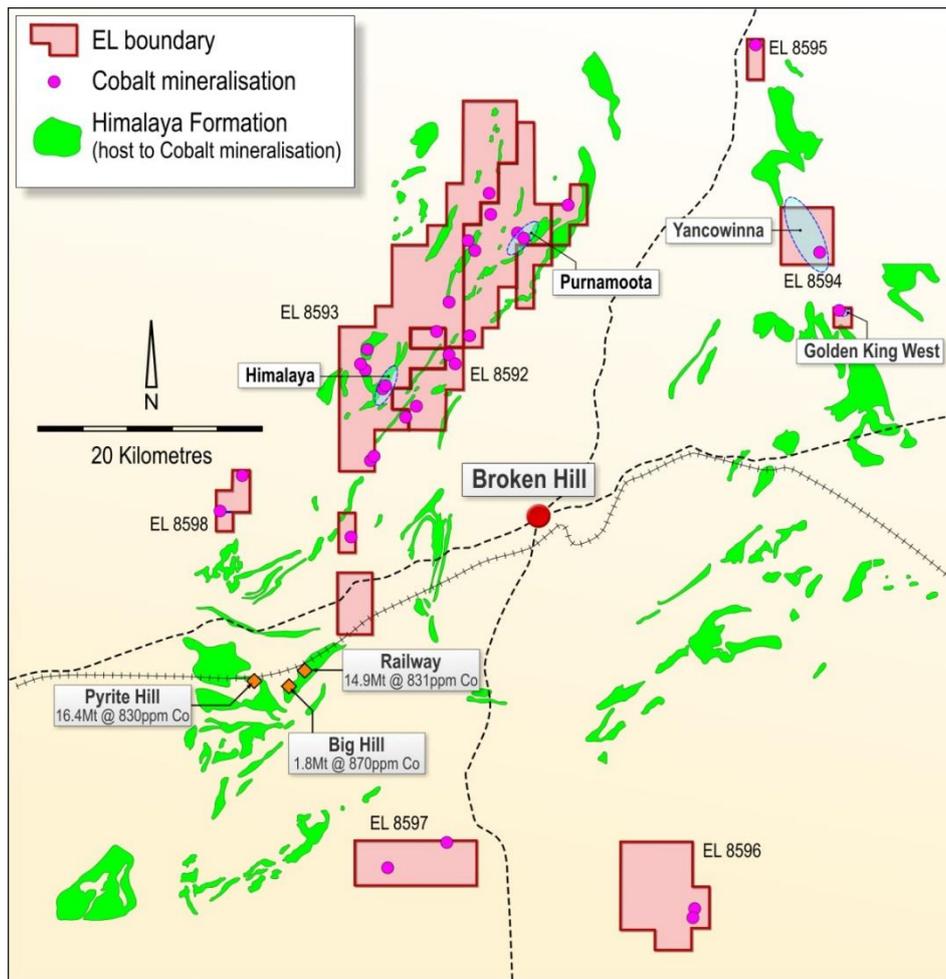


Figure 7: Location of cobalt targets within the Broken Hill tenements

### Golden King West Prospect

Tenement EL 8594 is divided into two distinct areas (Figure 9), the northern block which hosts the Yancowinna Cobalt Prospect and the southern block which hosts the Golden King West Prospect. The Golden King West Prospect is a new discovery by Archer.

At Golden King West, cobalt and copper mineralisation has been identified by Archer. The mineralisation appears to be hosted within a large structure (+300m) that cross cuts the local geology. Big Hill cobalt targets (same mineralisation as Cobalt Blue's Thackaringa Cobalt project) identified by the NSW government to the west of Golden King West have not yet been sampled but will be targeted in future exploration programs.

Anomalous copper, and in some instances gold and silver, was discovered in rock chips over a large area at Yancowinna and nearby Golden King West with some of the better results reported below:

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Sample_Id	GDA_E	GDA_N	Au (g/t)	Ag (g/t)	Cu (%)	Prospect
WD02800	570960	6483079	<0.01	0.2	<b>15.45</b>	Golden King West
WD02798	570783	6483022	<b>0.35</b>	5.8	<b>15.35</b>	Golden King West
WD02799	570955	6483078	0.01	0.3	<b>10.2</b>	Golden King West
WD02794	570757	6483005	0.02	1.1	<b>6.33</b>	Golden King West
WD02792	570914	6483064	<b>0.21</b>	6.6	<b>5.57</b>	Golden King West
WD02796	570783	6483022	0.03	1.1	<b>5.05</b>	Golden King West
WD02783	568172	6488783	<b>0.15</b>	<b>51.8</b>	<b>14.2</b>	Yancowinna
WD02786	568284	6488749	<b>0.18</b>	<b>36.9</b>	<b>4.59</b>	Yancowinna
WD02753	567918	6489142	<b>0.53</b>	2.8	<b>4.07</b>	Yancowinna
WD02976	567548	6489200	NA	9.4	<b>3.42</b>	Yancowinna
WD02979	567592	6489170	NA	6	<b>3.32</b>	Yancowinna

Table 1: Selected rock chip samples for Yancowinna and Golden King West

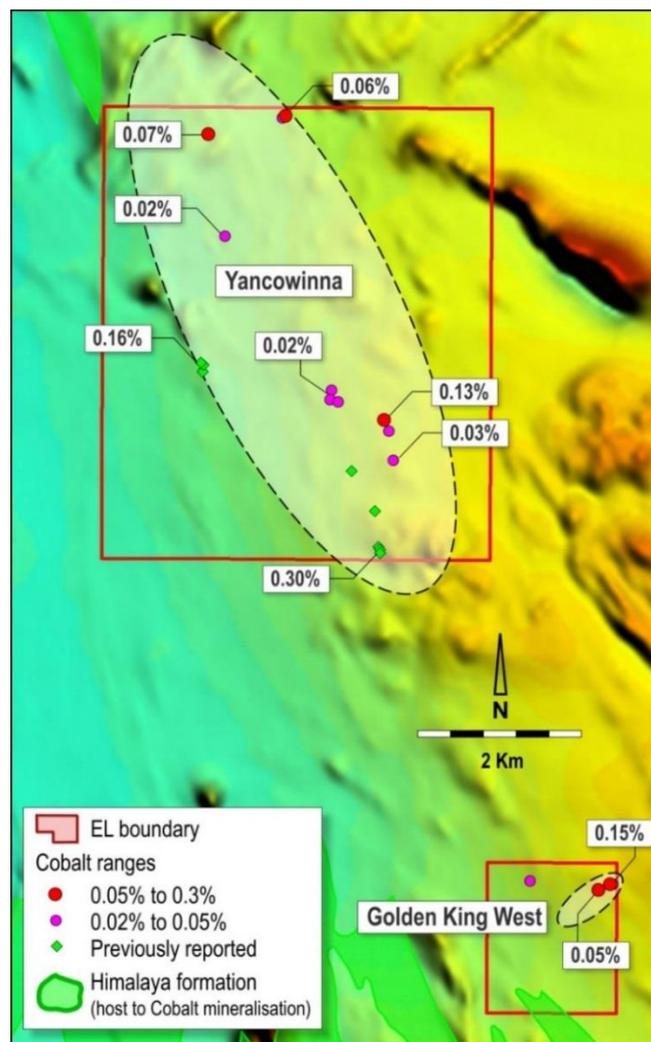


Figure 8: Cobalt results from rock chip sampling at Yancowinna over magnetic image

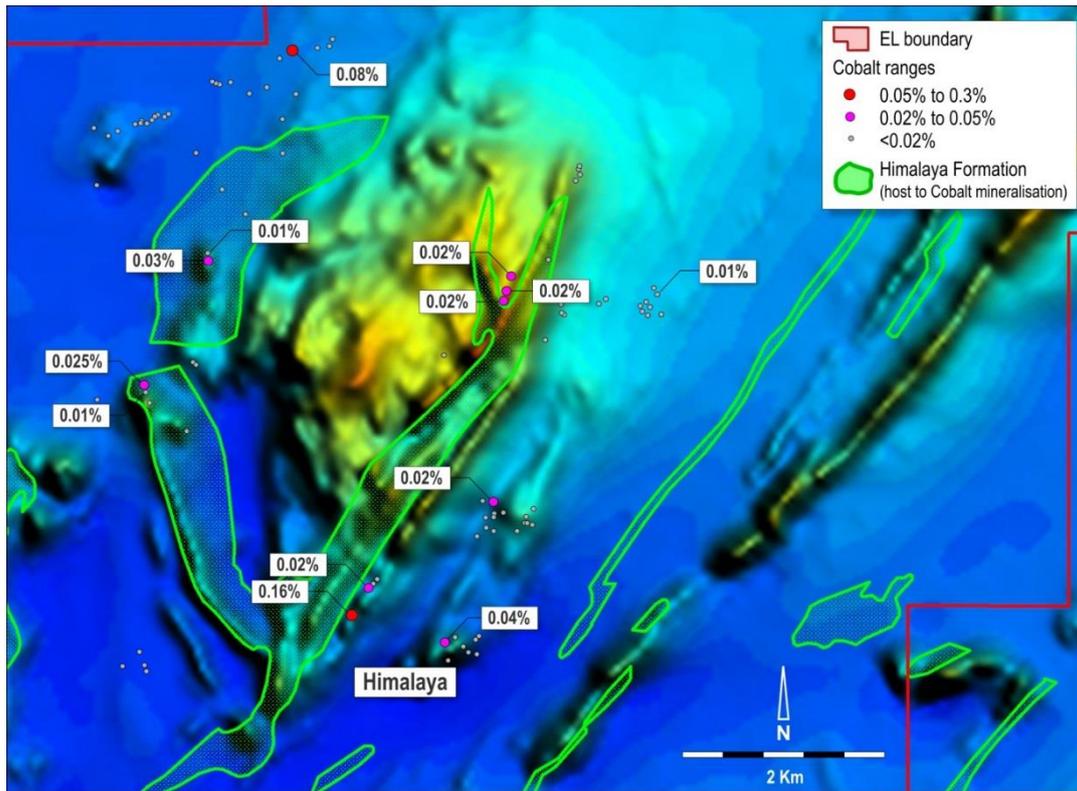


Figure 9: Cobalt results from rock chip sampling at Himalaya over magnetic image

### Purnamoota Cobalt Anomaly

At Purnamoota, Archer has identified a cobalt anomaly over a 1km strike length. Purnamoota is located 1-2km east of a historic Pb-Zn-Ag target that was drilled in the 1980's and is another example where historic exploration was focussed solely on finding repetitions of Broken Hill and ignoring other base metals, such as cobalt.

Rock chip sampling at Purnamoota returned grades of up to 0.14% cobalt and up to 3.45% copper. Purnamoota is located approximately 15km northwest of the Himalaya prospect and approximately 20km west of the Yancowinna prospect. Cobalt mineralisation at Purnamoota is associated with the Himalaya suite rocks.

Considerable copper anomalism (+ 100ppm) is being reported at Purnamoota, Secret South West and many other areas within the North Broken Hill project area with the most significant copper, gold and silver results recorded below:

Sample_Id	GDA_E	GDA_N	Au (g/t)	Ag (g/t)	Cu %	Prospect
WD02822	541703	6489726	0.02	0.7	<b>3.45</b>	Purnamoota
WD02823	541710	6489713	0.05	1.1	<b>3.4</b>	Purnamoota
WD02827	541710	6489713	0.01	1.2	<b>1.16</b>	Purnamoota
IC170725-08	541704	6489727	NA	0.7	<b>1.1</b>	Purnamoota
WD02963	541710	6489718	NA	1.1	<b>1.06</b>	Purnamoota
IC170724-05	535020	6478390	NA	4.2	<b>6.37</b>	Secret South West

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Sample_Id	GDA_E	GDA_N	Au (g/t)	Ag (g/t)	Cu %	Prospect
IC170619-11	527920	6481312	<b>0.4</b>	14.7	<b>5.11</b>	Not yet assigned
IC170619-07	527872	6481330	<b>0.35</b>	24.3	<b>4.28</b>	Not yet assigned
IC170730-16	527888	6481318	NA	0.7	<b>2.98</b>	Not yet assigned
IC170619-10	527915	6481312	<b>0.13</b>	9	<b>2.38</b>	Not yet assigned
IC170730-17	527857	6481321	NA	3.9	<b>1.46</b>	Not yet assigned

Table 2: Copper assays above 1% from Purnamoota, Secret South West and other areas within the North Broken Hill Project area

Minimal historic copper exploration work performed within the larger project area and Archer is excited by the potential of these areas to host copper mineralisation. Some of these areas have also been identified by Archer as prospective for cobalt.

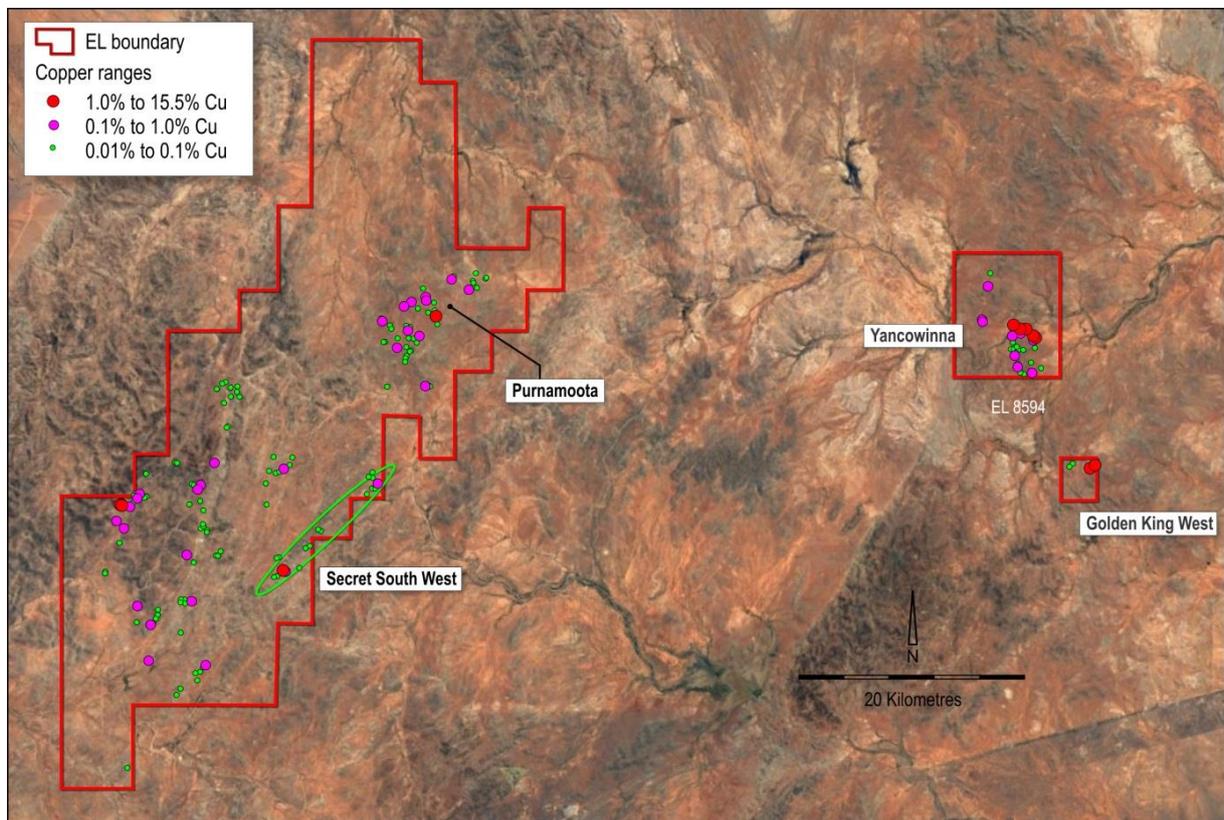


Figure 10: North Broken Hill project tenement map, showing location of newly discovered copper targets.

## Corporate

### Cash balance

The Company's cash balance at the end of the Quarter was \$1,028,000.

### AGM and annual report

During the Quarter, Archer issued its 2017 Annual Report and a Notice of Annual General Meeting (AGM). The details of the AGM are:

Date: Friday, 3 November 2017

Time: 10:00am (Adelaide time)

Location: Offices of Archer Exploration Ltd  
Level 1, 28 Greenhill Road  
Wayville SA 5034

### Issued Capital

Time	Shares on issue	Options on issue	Performance Rights on issue
Start of Quarter	137,194,306	5,000,000 (Rix Options) <sup>(1)</sup>	2,250,000
New issues during Quarter <sup>(2)</sup>	Nil	Nil	Nil
Forfeited/cancelled during the Quarter	Nil	Nil	750,000 <sup>(2)</sup>
End of Quarter	137,194,306	5,000,000 (Rix Options)	1,500,000
26 October 2017	137,194,306	5,000,000 (Rix Options)	1,500,000

#### Notes

- (1) Options issued to Paul Rix, a director, exercise price of \$0.15, expiry date of 31 January 2019 and subject to satisfaction of certain vesting conditions.
- (2) On 3 July 2017, 750,000 Performance Rights were forfeited. The share price hurdle for vesting of the first tranche (of three tranches) of Performance Rights for the performance period 1 July 2016 to 30 June 2017, was not achieved.

For further information, please contact:

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Mr Cary Helenius  
Market Eye  
Tel: (03) 9591 8906

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## List of Archer tenements

Tenement	Location	Commodity
<b>South Australia</b>		
EL 5920	Carappee Hill	Graphite
EL 5804 <sup>(1)</sup>	Wildhorse Plains	Graphite
EL 5815	Waddikee	Graphite
EL 5383	Mt Messenger	Graphite
EL 5791	Cockabidnie	Graphite
EL 5434	North Cowell	Graphite
EL 6019	Witchelina	Magnesite
EL 5730	Termination Hill	Magnesite
EL 5553	Collaby Hill	Magnesite
EL 5540	Spring Creek	Copper
EL 5433	Burra North	Base Metals
EL 5794	Blue Hills	Copper / Gold
EL 5769	Napoleons Hat	Copper / Gold
EL 4869	Beltana	Barite
PELA 567	Beltana	Petroleum
EL 5870	Carpie Puntha	Graphite
EL 5909	Yanyarrie	Barite
EL 5935	Whyte Yarcowie	Cobalt / Copper
MC 4393	Campoona Shaft	Graphite
<b>New South Wales</b>		
EL 8592	Morris's Blow	Cobalt / Copper
EL 8593	Broken Hill	Cobalt / Copper
EL 8594	Broken Hill	Cobalt / Copper
EL 8595	Broken Hill	Cobalt / Copper
EL 8596	Kanbarra	Cobalt / Copper
EL 8597	Kanbarra	Cobalt / Copper
EL 8598	Kanbarra	Cobalt / Copper
<b>Tenements relinquished during, or after end, of Quarter</b>		
None		
<b>Tenements acquired during, or after end, of Quarter</b>		
EL 6000	Pine Creek	Copper / Gold
EL 6029	Altimeter	Copper / Gold

- (1) All tenements are 100% held by wholly owned subsidiaries of Archer, except for EL 5804 where Archer has the right to explore for all minerals except for uranium.

## Competent Person Statement

The exploration results reported herein, insofar as they relate to mineralisation, are based on information compiled by Mr. Wade Bollenhagen, Exploration Manager who is an employee of Archer Exploration Limited.

Mr. Bollenhagen is a Member of the Australasian Institute of Mining and Metallurgy who has more than twenty 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.

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